Underpinnings of dispositional optimism and pessimism and associated constructs

Kati Heinonen

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Supervisors: Professor Liisa Keltikangas-Järvinen
Department of Psychology
University of Helsinki, Finland

Professor Katri Räikkönen
Department of Psychology
University of Helsinki, Finland

Reviewers: Professor Karen A. Matthews
Department of Psychiatry
University of Pittsburgh School of Medicine, USA

Professor (emeritus) Isto Ruoppila
Department of Psychology
University of Jyväskylä, Finland

Opponent: Professor Marcel A.G. van Aken
Department of Developmental Psychology
Utrecht University, The Netherlands

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Abstract

A growing body of empirical evidence shows that dispositional optimism and pessimism, i.e. positive and negative outcome expectancies for the future, have contrasting effects on physical and psychological well-being and adjustment. Relative to the wealth of information on the physical and psychological outcomes of this disposition, not much is known about its development. The aim of the current study was to investigate the underpinnings of adulthood dispositional optimism and pessimism and associated constructs in the context of the child's temperament, parenting, self-esteem development and attachment security.

First, childhood difficult temperament (i.e. maternal perceptions of the child as high in activity, high in negative emotionality, and low in social cooperation) and maternal hostile child-rearing attitudes (i.e. the mother's perceptions of the child as emotionally distant, as a burden, and in need of strict disciplinary action) were, as such, important developmental underpinnings of high levels of adulthood pessimism. Furthermore, the child's difficult temperament at the ages of 3 and 6 was shown to promote hostile child-rearing attitudes over three years, which was further shown to be related to higher levels of adulthood pessimism 21 years later. *Second*, the potential developmental precursors of self-esteem from childhood to adolescence, and across the adolescence period, were studied. Self-esteem is a construct that, according to prior research and the data used in the current thesis, is closely related to dispositional optimism and pessimism, and/or may developmentally precede it. A difficult temperament in childhood was likely to prospectively promote hostile child-rearing over three years, which in turn predicted low self-esteem in adolescence over six years. Moreover, a difficult temperament in early adolescence predicted congruent temperamental characteristics over three years, which was further related to a decrease in self-esteem during adolescence. *Third*, the generalized representations of attachment insecurity (including both childhood-attachment-related recollections of the family of origin as well as adulthood-attachment dimensions) were related to higher levels of dispositional pessimism.

Together the results underscore the importance of childhood temperament and family-related factors and their transactions as underpinnings of adulthood dispositional optimism and pessimism. Furthermore, they emphasize the need to study correlations with and the development of the psychological characteristics (such as self-esteem and attachment security) that precede or at least develop in parallel with dispositional optimism and pessimism.

Key words: Dispositional optimism, pessimism, longitudinal, temperament, parenting, attachment.

Optimismistisen ja pessimistisen persoonallisuuspiirteen kehityspsykologiset juuret ja läheiset käsitteet

Tiivistelmä

Aikaisemmat tutkimukset ovat osoittaneet, että optimistisesti tulevaisuuteen suhtautuvilla ihmisillä on parempi psyykkinen ja fyysinen terveys sekä sopeutumiskyky kuin pessimistisemmin tulevaisuuteen suhtautuvilla ihmisillä. Optimistisen/pessimistisen persoonallisuuden piirteen kehittymiseen vaikuttavista tekijöistä tiedetään toistaiseksi kuitenkin varsin vähän. Tässä tutkimuksessa tarkasteltiin aikuisiän optimistista/pessimististä persoonallisuuden piirrettä lapsuusiän temperamentin, lapsuusiän kasvuympäristön, nuoruusiän itsetunnon kehityksen sekä aikuisiän kiintymyssuhderepresentaatioiden kontekstissa.

Tulokset osoittivat, e*nsinnäkin,* että äidin kokemus lapsesta temperamentiltaan vaativana (vähemmän sosiaalisena, aktiivisempana ja negatiivisesti emotionaalisempana) ja äidin kasvatusasenteet, jotka heijastivat äidin kokemusta lapsesta emotionaalisesti etäisenä, rasittavana ja hänen kokemustaan, että lapsi tarvitsee tiukkaa kuria, ennustivat aikuisiän pessimistisempää tulevaisuuteen suhtautumista. Lisäksi, lapsen vaativa temperamentti kolmen ja kuuden vuoden iässä ennusti kolme vuotta myöhemmin äidin negatiivisempia kasvatusasenteita, jotka puolestaan ennustivat pessimistisempää persoonallisuutta 24 ja 27 vuoden iässä. *Toiseksi,* koska itsetunto ja sen muutos nuoruusiässä ovat yhteydessä aikuisiän optismismiin/pessimismiin, tässä tutkimuksessa tarkasteltiin nuoruusiän itsetunnon tason ja muutoksen ennustajia. Lapsen vaativa temperamentti kuuden ja yhdeksän vuoden iässä ennusti äidin negatiivisempia kasvatusasenteita kolmen vuoden päästä, jotka puolestaan olivat yhteydessä matalampaan itsetuntoon nuoruusiässä. Nuoruusiässä tapahtuvaa itsetunnon laskua ennusti puolestaan äidin raportoima vaativa temperamentti nuoruusiässä. *Kolmanneksi,* kiintymyssuhteen turvattomuuteen liittyvät muistot omista vanhemmista yhdessä aikuisiän turvattomien kiintymyssuhderepresentaatioiden kanssa olivat yhteydessä aikuisiän pessimistiseen persoonallisuuteen.

Tulokset antavat viitteitä siitä, että lapsuusiän temperamentilla ja kasvatuksella sekä niiden välisellä vuorovaikutuksella on merkitystä optimistisen/pessimistisen persoonallisuuden piirteen kehittymisessä. Lisäksi tulokset korostavat muiden psykologisten piirteiden (itsetunto ja kiintymyssuhderepresentaatiot) ja niiden kehityksen tutkimisen tärkeyttä koetettaessa ymmärtää optimistisen/pessimistisen persoonallisuuden piirteen kehittymistä.

Avainsanat: Optimismi, pessimismi, pitkittäistutkimus, temperamentti, kasvatus, kiintymyssuhde.

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1. INTRODUCTION

1.1. Dispositional optimism and pessimism: conceptualization and operationalization

The concepts of optimism and pessimism have been acknowledged for a long time. The roots of their use in contemporary psychology go back to the beginning of the modern period of philosophy in the 17th century (Domino & Conway, 2001). At that time, philosophers commonly maintained that the successful application of the rationalization of the cosmos needed either an optimistic or a pessimistic philosophical outlook. These outlooks were seen as opposing positions with regard to the universe: as favorable to the aims and aspirations of human beings or as generally resistant to the flourishing of human beings and civilizations. Moving from the emergence of optimism and pessimism in the writings of Rene Descartes (1596-1650) (Descartes, 1628/1985) to 19th and 20th centuries and the work of psychologist-philosophers such as William James (1842-1910) (James, 1902), the focus of the discussion shifted gradually from the cosmos to the subjective element of human experience (Domino & Conway, 2001).

During the past thirty years, mainly as a legacy of Scheier and Carver's (1985) pioneering research on generalized outcome expectancies, and Seligman's (1975) influential work on learned helplessness, psychologists have actively examined optimism and pessimism in our lives. Even though most contemporary researchers agree with the general conceptualizations that optimism reflects an expectation that good things will happen, whereas pessimism reflects an expectation that bad things will happen, there are differences in operationalization. Most of the disagreement arises from the theoretical frameworks from which these terms are derived.

Optimism and pessimism are defined and operationalized here according to Scheier and Carver's (Scheier & Carver, 1985; Scheier, Carver, & Bridges, 1994) dispositional optimism and pessimism with its roots in the theory of the self-regulation of behavior. In their seminal introductory article, Scheier and Carver (1985) defined dispositional optimism and pessimism as generalized outcome expectancies of good vs. bad outcomes in one's life. Their definition stems from the more general model of the

self-regulation of behavior that assumes that peoples' actions are greatly influenced by their beliefs about the probability of those actions. Expectancies are seen as a major determinant of the disjunction between two general classes of behavior: continued striving vs. giving up. Accordingly, individuals who hold positive expectations for the future are assumed to believe that good things will occur in their lives, and tend to see desired outcomes as attainable and to persist in their goal-directed efforts. In contrast, individuals who hold negative outcome expectations for their future are assumed to expect bad things to happen, and tend to withdraw effort more easily, become passive and finally to give up on achieving their goals (Scheier & Carver, 1985). Scheier and Carver (1985) also suggested that outcome expectancies *per se* are the best predictors of behavior, rather than the basis from which the expectancies are derived. In other words, it is not important *why* people expect good things to happen in their lives (e.g., having good luck, being favored by God, working hard); *what is important is the generalized optimistic or pessimistic orientation itself* (Scheier & Carver, 1987). Further, Scheier and Carver suggest that these generalized expectancies are relatively stable across time and in different contexts, and that they form the basis of an important personality trait (Scheier & Carver, 1985; Scheier et al., 1994).

At the time when the concepts of dispositional optimism and pessimism were first presented there was a lack of measures that focused exclusively on the assessment of generalized outcomes. As part of their introductory work, Scheier and Carver (1985) developed a measure called the Life Orientation Test (LOT), which was defined as a measure of "the favorability of a person's generalized outcome expectancy". It consisted of self-reported items regarding outcome expectancies worded in a positive or a negative way. Later the measure was revised to eliminate some content overlap with coping (Scheier et al., 1994). The revision comprised the exclusion of two coping-related items and in order to equalize the number of positively and negatively worded items, the exclusion of one negatively worded item and the addition of a positively worded item. The LOT and LOT-R have been shown to be highly correlated ($r = .95$) (Scheier et al., 1994). Even though there has been evidence that both may load on two separate factors, one measuring optimism and the other measuring pessimism (e.g., Marshall, Wortman, Kusulas, Hervig, & Vickers, 1992), other evidence has suggested that the scale should be considered unidimensional (Scheier & Carver, 1985; Scheier et al., 1994). The two-factor structure was seen to reflect the item wording (e.g., yea saying) rather than more meaningful item content (Scheier & Carver, 1985; Scheier et al., 1994). Consequently, optimism and pessimism ought to be considered the opposite poles on a single

continuum (Scheier & Carver, 1985; Scheier et al., 1994). The reliability of the unidimensional scale has been shown to be .76 for the original LOT (Scheier & Carver, 1985), and .78 for the LOT-R (Scheier et al., 1994). Moreover, the stability of both scales have been shown to be high/considerable over time: for the original LOT test re-test correlation .79 over four weeks (Scheier & Carver, 1985), .72 over a 14-week interval (Scheier & Carver, 1987), and .71 over 10.4 years (Matthews, Räikkönen, Sutton-Tyrrell, & Kuller, in press); for the LOT-R test re-test correlation .68 over four months and .79 over 28 months (Scheier et al., 1994). LOT-R has also been shown to have high stability across different contexts (Park & Folkman, 1997).

1.1.1. A model of the self-regulation of behavior – theoretical background

Dispositional optimism and pessimism has its' grounds on the model of behavioral self-regulation (Carver & Scheier, 1981; Carver & Scheier, 1998), suggesting that actions are greatly influenced by expectations about their consequences. The expectations are thus the element through which optimism and pessimism are linked to the model. The model with all its complexities is not a prerequisite for understanding optimism and pessimism, but it does embody the underlying theoretical principles. Further, it helps in connecting optimism and pessimism to a broader context of behaviors and emotions, and is therefore briefly described next.

The self-regulatory model of behavior is part of an expectancy-value approach to motivation tradition. Generally, this operates on the assumption that behavior is organized around goals (i.e. the value element) and a sense of confidence or doubt about their attainability (i.e. the expectancy element). Without the goal or confidence in its attainability there will be no action. The model adds the element of feedback to the expectancy-value approach in the form of the discrepancy-reducing feedback loop. This feedback loop includes four elements: (1) the input function that brings information in and is equivalent to perception; (2) reference value or goals; (3) a comparator that compares input and reference value, and yields information on whether values differ from one another or not; (4) the output function, which is equivalent to behavior (sometimes also internal), and changes or stays as it is depending on the information received from the comparator. The discrepancy-reducing feedback loop aims at diminishing the discrepancy between the input and the reference value, and exists alongside the discrepancy-increasing loop, which functions to enlarge the discrepancy and works with anti-goals.

Alongside and parallel to this behavior-guiding feedback process is the system of affect origins, which describes how feelings arise in the course of behavior and checks how well the behavior is doing at reducing (or enlarging) the discrepancy. The input of the affect-creating loop is a representation of the discrepancy reduction (or escalation) in the behavior system over time. The comparator checks for deviation from the standard, i.e. an acceptable or desired rate of change in behavioral discrepancy. The comparison process yields two outcomes: a sense of confidence/doubt, and a sense of positiviness/negativiness. If the action system is doing well, the result is confidence and positiviness, if it is doing poorly then doubt and negativeness arise.

When people are experiencing adversity in trying to move towards their goals they are assumed to stop their effort momentarily and to evaluate more carefully their likelihood of achieving a successful outcome. This assessment process yields outcome expectancies and affects subsequent behavior. Prior memories of outcomes in a similar situation may affect expectations of the current situation. However, more generalized expectancies may also be derived from the memory. Dispositional optimism and pessimism are, in fact, such generalized outcome expectancies. They are proposed to be the best predictors of behavior and emotional reactions in new and unexpected situations, and also of behavior over the broadest range. The difference between optimism and pessimism and the sense of confidence and doubt is in the breadth of the goals and the level of confidence/doubt. In optimism and pessimism the sense of confidence/doubt is more diffuse and broader in scope. Thus, when confronting challenges or even adversities, optimists should have confidence that things will turn out well, whereas pessimists should have high doubts about the favorable outcomes. Favorable expectations also encourage people to renew their efforts to achieve the goal, whereas unfavorable expectations induce disengagement from further attempts.

1.1.2. Convergent and divergent validity

Dispositional optimism and pessimism (both the LOT and the LOT-R) have been shown to be correlated in an expected direction with a wide area of related constructs, such as self-esteem, hopelessness, and neuroticism (e.g., Fontaine & Jones, 1997; Scheier & Carver, 1985; Scheier et al., 1994), thus indicating convergent validity. Moreover, when factor analyzed with related constructs such as self-esteem and self-mastery, dispositional optimism and pessimism items have been shown to load meaningfully on one separate factor (Scheier & Carver, 1985; Scheier et al., 1994), indicating divergent validity from these related constructs. Furthermore, the divergent validity of the dispositional optimism

and pessimism construct has been studied by evaluating whether it has some predictive validity that is not explained by related constructs. The most extensive discussions and studies have been conducted in the context of self-esteem and measures reflecting neuroticism/negative affectivity (e.g., Carvajal, Clair, Nash, & Evans, 1998; Scheier et al., 1994; Smith, Pope, Rhodewalt, & Poulton, 1989). (For further discussion on dispositional optimism and pessimism and self-esteem, see Chapter 1.3.3.1.). With regard to neuroticism/negative affectivity, Smith et al., (1989) were the first to raise the issue of divergent validity. They showed that when the effect of neuroticism (measured in terms of chronic anxiety) was partialled out, the correlation between optimism and physical symptoms disappeared, but the effect of neuroticism remained even after controlling for the effect of optimism (Smith et al., 1989). They argued that optimism is no more than an inversely scored measure of neuroticism. However, contradictory findings also exist: dispositional optimism and pessimism has been shown to predict well-being (e.g. blood pressure, depression) even after constructs related to neuroticism/negative affectivity, such as trait anxiety, have been controlled for (e.g., Räikkönen, Matthews, Flory, Owens, & Gump, 1999; Scheier et al., 1994). Scheier and Carver (Scheier & Carver, 1992; Scheier et al., 1994) pointed out that as neuroticism is a multifaceted construct incorporating in part (though not entirely) the absence of optimism, there is a distinct conceptual link. Furthermore, they suggested that dispositional optimism and pessimism may possibly be a more strongly independent predictor of some outcomes than of others. In conclusion, to date no compelling reasons have been found to attribute dispositional optimism and pessimism or their effects on well-being to an alternative construct.

1.1.3. Closely-related theoretical approaches

There are some theoretical frameworks that bear some similarity to dispositional optimism and pessimism. Scheier and Carver (1987; 1992) discussed theoretical similarities to attributional style (Seligman, 1991; Seligman, Abramsom, Semmel, & von Baeyer, 1979; Seligman, 1975) and self-efficacy (Bandura, 1977; 1982; 1986) in their articles on the concept of dispositional optimism and pessimism. The concept of hope (Snyder, 1989, 1994) also warrants discussion in relation to dispositional optimism and pessimism.

Attributional style. Seligman's (1975) work on learned helplessness provided the basis for another popular line of research on optimism and pessimism in which the two concepts are assessed more indirectly than the dispositional optimism and pessimism of Scheier and Carver (1985). They are defined as attributional style, i.e.

people's characteristic manner of explaining the good versus the bad events they encounter in life (Peterson & Seligman, 1984; Seligman, 1991). Individuals considered optimistic explain negative life events in terms of causes that are relevant only at that specific time, that have only a limited impact, and are external to the self. In contrast, individuals with a more pessimistic orientation produce explanations that carry the implication that negative outcomes will continue to occur in the future: negative events are seen to have causes that persist into the future, influence a broad range of events and involve aspects of the self.

There is a clear conceptual link between this attributional style and dispositional optimism and pessimism. Both assume that the consequences of optimism and pessimism derive from differences in expectancies (Scheier & Carver, 1992). Further, for the most part, findings on the associations between dispositional optimism and pessimism and well-being parallel those on explanatory style and well-being (see for reviews e.g., Peterson & Bossio, 1991; Scheier, Carver, & Bridges, 2001). However, there are also clear differences. Attributional style focuses on people's judgements about the causes of events, whereas the dispositional optimism and pessimism focus directly on generalized expectations about the future (Scheier & Carver, 1992). In addition, the inferred expectations for the future may be negative even when an optimistic explanation is given for the event (Gillham, Shatté, Reivich, & Seligman, 2001). Finally, correlations between dispositional optimism and pessimism and measures of attributional style have been significant, but not strong (ranging from .20 to .29) (e.g., Dember, 2001; Scheier & Carver, 1992)

Self-efficacy. Bandura's (1977; 1982; 1986) concept of self-efficacy is also closely related to dispositional optimism and pessimism. Bandura differentiated between self-efficacy and outcome expectancies. Self-efficacy refers to people's expectations of being either able or unable to carry out desired behaviors successfully, and is characterized as the strongest predictor of behavior. Outcome expectancies refer to the belief that any given behavior will lead to a desired outcome. Evidently there are similarities between the self-efficacy and dispositional optimism and pessimism constructs, including the central reliance on expectancy constructs, but two clear differences have also been highlighted (Scheier & Carver, 1987, 1992).

The first difference lies in the critical role of personal agency as a determinant of behavior. According to Bandura's theory of self-efficacy (Bandura, 1986), the decision to continue with or disengage from goal attainment is based solely on perceptions of personal efficacy. In contrast, according to Scheier and Carver (1987), general outcome

expectancies affect behavior and perceptions of personal efficacy are only one source of these expectancies (Scheier & Carver, 1987, 1992). The second major difference lies in the breadth of the expectancies on which the constructs focus. According to Bandura (1977; 1982; 1986), people's behavior is best predicted by domain-specific expectancies. Nevertheless, findings suggest that self-efficacy and dispositional optimism and pessimism are related (see e.g., Magaletta & Oliver, 1999).

Hope. Another theoretically related construct is Hope (Snyder, 1989, 1994, 2002). Hope is formally conceptualized as a positive motivational state in goal attainment. It includes two interrelated and reciprocal components: (1) the perceived capability to derive pathways to desired goals, and (2) a sense of the successful use of energy to initiate and sustain movement toward a goal. Dispositional optimism and pessimism and Hope are very similar in their starting points. Both carry the assumption that human behavior is goal-directed, and that confidence in an element of motivation (Carver & Scheier, 2002). Both are also constructs that are considered relatively stable characteristics that reflect general expectancies for the future (Snyder, 2002). The important difference between them lies in the role of perceptions of personal ability (or agency) (Carver & Scheier, 2002). Carver and Scheier (2002) point out in their writings on dispositional optimism and pessimism that it matters little how the goal is attained, the only thing that is relevant is that it is attainable. They emphasize confidence in the eventual outcome as the key variable, rather than personal agency in the process. Furthermore, it has been suggested that hope focuses more directly on the personal attainment of specific goals, whereas dispositional optimism and pessimism focuses more broadly on the expected quality of future outcomes in general (Bryant & Cvengros, 2004). Nevertheless, LOT and Hope have been shown to correlate significantly (e.g., $r = .55$, Magaletta & Oliver, 1999).

1.2. The significance of dispositional optimism and pessimism in well-being

There is increasing empirical evidence that dispositional optimism and pessimism have contrasting effects on physical and psychological well-being and adjustment (for reviews, see Peterson & Bossio, 2001; Scheier & Carver, 1985, 1987, 1992; Scheier et al., 2001).

1.2.1. Physical outcomes

It has been shown that pessimists relative to optimists have a worse morbidity and mortality prognosis: among coronary artery bypass patients, optimists were found to be

less likely than pessimists to be re-hospitalized on account of coronary events in the next six months, given adjustment for medical covariates (Scheier et al., 1999). Among young patients diagnosed with cancer, the less pessimistic ones were found more likely to be living after eight months than the more pessimistic ones, after site and symptoms had been controlled for (Schulz, Bookwala, Knapp, Scheier, & Williamson, 1996). A study conducted on patients with head and neck cancer found that pessimists were less likely than optimists to survive one year later (Allison, Guichard, Fung, & Gilain, 2003). Among healthy middle-aged women, the more pessimistic ones were found to more likely to show progression of carotid disease than the optimists ones across three years, after controlling for biological and behavioural covariates (Matthews et al., in press). Furthermore, pessimists have been shown to exhibit higher levels of blood pressure during stressful laboratory circumstances (Williams, Riels, & Roper, 1990) and during ongoing daily living (Räikkönen et al., 1999).

1.2.2. Psychological outcomes

Pessimists have also been shown to psychologically fare worse than optimists following a variety of medical interventions and during other stressful life-events. For example, pessimistic patients have reported a lower quality of life following coronary artery bypass surgery, e.g., lower work satisfaction, less positive mood, and more physical pain, adjusted for standard medical covariates (Fitzgerald, Tennen, Affleck, & Pransky, 1993; King, Rowe, Kimble, & Zerwic, 1998; Scheier et al., 1989). Pessimistic cancer patients have reported worse adjustment following surgery and radiation therapy for different types of cancers (Christman, 1990; Johnson, 1996). Pessimistic women have reported more depressive symptoms and anxiety during and after pregnancy (Carver & Gaines, 1987; Fontaine & Jones, 1997; Park, Moore, Turner, & Adler, 1997), and have experienced more distress following in vitro fertilization failure (Litt, Tennen, Affleck, & Klock, 1992). Further, pessimists have been shown to adjust less favorably to their first semester in college (Aspinwall & Taylor, 1992; Brissette, Scheier, & Carver, 2002).

Moreover, evidence shows that pessimists relative to optimists experience fewer positive (Räikkönen et al., 1999; Scheier et al., 1994) and more negative affectional states, and in particular, higher levels of depressive symptoms (Bromberger & Matthews, 1996; Chang, 1998; Chang & Farrehi, 2001; Vickers & Vogeltanz, 2000), and lower levels of life satisfaction and more physical symptoms (Chang, 1998; Chang & Farrehi, 2001). They have also been shown more frequently to experience interpersonal interactions as conflictual (Räikkönen et al., 1999).

Finally, optimists have been shown to use more effective and appropriate coping strategies than pessimists. There is evidence, for example, that when faced with stress, optimists tend to use problem-focused modes of coping (Brissette et al., 2002; Fontaine, Manstead, & Wagner, 1993; Scheier, Weintraub, & Carver, 1986) and to seek social support (Aspinwall & Taylor, 1992; Fry, 1995; Scheier et al., 1986), whereas pessimists use denial, distance themselves from the problem, disengage from the goal and social relationships (Brissette et al., 2002; Carver, Lehman, & Antoni, 2003; Scheier et al., 1986).

1.3. Developmental underpinnings and correlates of dispositional optimism and pessimism

Relative to information on the physical and psychological consequences of dispositional optimism and pessimism, not much is known about the developmental correlates of individual differences in this context. Scheier and Carver (1993) suggest in their brief review article that the determinants of dispositional optimism and pessimism must necessarily fall into two broad categories: nature and nurture. On the environmental side they propose that it is certainly reasonable to argue that optimism and pessimism are partly learned from prior experiences of success and failure. They also suggest that children might acquire their sense of optimism and pessimism from their parents. Parents may influence the optimistic or pessimistic outlook of their children by offering, explicitly or implicitly, a model of how one should meet difficulties in terms of expectations and coping strategies. In addition, parents may influence their children directly by instructing them in problem solving.

To our knowledge, only four empirical studies to date have examined the potential developmental underpinnings of this disposition. One of these, a study on same-sex middle-aged Swedish twins showed that up to 25% of the variance in dispositional optimism and pessimism may be due to hereditary factors (Plomin et al., 1992): the shared rearing environment was significant for optimism, but not for pessimism. Secondly, Hjelle, Busch, and Warren (1996) showed that dispositional optimism correlates positively with retrospectively reported maternal and paternal warmth/acceptance, and negatively with aggression/hostility, neglect/indifference, and undifferentiated rejection. In line with that study, Ben-Zur (2003) showed that adolescents' dispositional optimism was concurrently related to adolescents' and parents' reported positive adolescent-parent relationship (emotional closeness and

communication). However, in contrast, Brewin, Andrews, and Furnham (1996) showed that, the fathers', mothers' and adolescents' own current reports of parental approval (praise and criticism in specific areas, e.g. appearance, behavior with friends) was not related to the adolescents' concurrent reports of dispositional optimism and pessimism. Finally, both Ben-Zur (2003) and Brewin et al., (1996) found that the dispositional optimism and pessimism of parents and their adolescent children were not significantly related. To date, no study has systematically examined the developmental correlates and underpinnings, or used a longitudinal design, in an attempt to discover how dispositional optimism and pessimism may develop.

On the metatheoretical level, there are three different causal approaches to the study of an individual's development and functioning (Magnusson, 1990; Magnusson & Stattin, 1998) (a) the biological-predisposition approach, which assumes that individual differences can be traced back to the physiological system (i.e. the brain and the autonomic nervous system) in terms of genes and maturation; (b) the environmental approach, which assumes that the main causal factor behind individual development is to be found in environmental factors such as child-rearing practices or socio-economic circumstances; (c) the mentalistic approach according to which the main determinant of individual functioning and development is in the individual's internal mental models that direct psychological processes (e.g., thoughts, perceptions, values, goals). Both biological and environmental factors are assumed to affect individual functioning and development not only directly, but also implicitly by being basic determinants of internal psychological mental models (Magnusson & Stattin, 1998). Each of these approaches is proposed to have an important role that must be considered in a comprehensive framework for the study of individual differences. Further, contemporary perspectives on the development of individual differences consider these different elements not as unidirectional and independent, but rather as elements of a dynamic, continuous, and reciprocal process of interaction (Halverson & Wampler, 1997; Magnusson, 1990).

This metatheoretical approach was used in the current study as a framework for investigating the developmental underpinnings and correlates of dispositional optimism and pessimism. Its application makes possible to integrate earlier proposals as well as empirical findings regarding the development of dispositional optimism and pessimism. It also promotes the view that an individual's personality development is not independent of other internal psychological characteristics and highlights the importance of studying transactions and interactions between and within individual factors and the environment.

Of the four studies that comprise the current dissertation, Study I investigated the longitudinal relations between biologically-rooted temperament characteristics and the childhood family environment reflected in parenting, and adulthood optimism and pessimism over 21 years. Temperament and parenting were measured twice during childhood in order to identify their potential transactions and interaction in its development. Studies II and III dealt with the potential developmental precursors of self-esteem from childhood to adolescence, and across the adolescence period, as we have shown that the level of self-esteem and change in it during adolescence are related to adulthood optimism and pessimism (Heinonen, Räikkönen, & Keltikangas-Järvinen, submitted). Finally, Study IV aimed to establish whether mental models of attachment with its roots in childhood close relationships and related recollections of childhood family life are related to optimism and pessimism.

1.3.1. Temperament and dispositional optimism and pessimism

According to Rothbart, Ahadi, & Evans (2000), individual differences in temperament may reflect the hereditary influences in the development of the personality in general, and from the perspective of the current study, of dispositional optimism and pessimism in particular.

1.3.1.1. Definitions of temperament

Definitions of temperament vary according to the theoretical framework in question (e.g., Goldsmith et al., 1987; Rothbart & Bates, 1998). However, there appears to be consensus that it comprises biologically-rooted individual differences in early appearing behavioral tendencies that form the basis of the personality (Bates, 1989; Goldsmith et al., 1987; Rothbart & Bates, 1998). The biological roots reflect the assumption of the genetic basis of temperament (e.g., Buss & Plomin, 1984; Caspi, 1998), and also individual differences in the autonomic nervous system and the brain's neuroendrocrinological functions that are influenced by constitutional factors (e.g., Rothbart, 1989). Empirical studies have confirmed a substantial genetic variance in temperament traits (e.g., Keltikangas-Järvinen et al., 2003; Saudino, McGuire, Reiss, Hetherington, & Plomin, 1995). However, environmental factors also affect its development (e.g., Keltikangas-Järvinen, Räikkönen, Ekelund, & Peltonen, 2004). In terms of observed behavioral tendencies, many different temperament dimensions have been detected and categorizations constructed (Buss & Plomin, 1975; Rothbart, 1981; Thomas & Chess, 1977). Conceptual reviews and factor-analytic studies have concluded

that five basic "consensus" dimensions of childhood temperament may exist (see Caspi, 1998): activity (energy level), positive affectivity (pleasure, enthusiasm, contentment), inhibition (approach/withdrawal, shyness, fearfulness), negative affect (anger proneness, irritability, distress), and persistence (attention span, distractability, interest) (Caspi, 1998).

Different temperament dimensions exist not in isolation, but in combinations (e.g., Buss & Plomin, 1975; Caspi & Silva, 1995; Thomas, Chess, & Birch, 1968). The concept of "difficult temperament" is the most widely known and used. It was first operationalized by Thomas, Chess and Birch (1968), and was suggested to include a combination of tendencies including negative mood, rejection/fear of novel situations, slow adaptation to change, intense expression of affect, and lack of rhythmicity. It has been suggested that it challenges caregivers more than children with other temperament traits. Since then the concept has been reformulated in several different contexts, and its existence has been confirmed (Bates, 1989; Caspi, 1998; Goldsmith et al., 1987; Prior, 1992; Rothbart & Bates, 1998). Furthermore, several studies have shown that it is related to later outcomes such as personality, adjustment, and internal and external behavioral problems (see e.g. Caspi, 1998; Rothbart & Bates, 1998). In the current study, "difficult temperament" was operationalized according to the suggestions put forward by Buss and Plomin (see comments on Goldsmith et al., 1987). It includes high levels of negative emotionality, and activity as well as low cooperativity. This constellation has been shown to directly predict hostile attitudes (Räikkönen, Katainen, Keskivaara, & Keltikangas-Järvinen, 2000), and the difficult-temperament cluster (Pesonen, Räikkönen, Keskivaara, & Keltikangas-Järvinen, 2003), and depressive symptoms via hostile child-rearing (Katainen, Räikkönen, Keskivaara, & Keltikangas-Järvinen, 1999), all outcomes that have been self-rated over follow-up intervals ranging from 12 to 17 years.

There are several different approaches to measuring temperament, including parent reports, naturalistic and laboratory observations (Bates, 1989; Prior, 1992; Rothbart & Bates, 1998). In the case of children, the most commonly used measure is parental (usually maternal) reports. Even though some researchers question the use of such reports (Kagan, 1998; Vaughn, Taraldson, Crichton, & Egeland, 1981), there are factors that support it. The mother's characteristics (e.g., personality, depression, negative affectivity) have been suggested to distort her evaluations of the child's temperament (e.g., Seifer, Sameroff, Baldwin, & Baldwin, 1992; Vaughn et al., 1981) although evidence that they affect her ratings has not been systematic (e.g., Mednick, Hocevar, & Baker, 1996). Furthermore, observer and parental ratings have shown modest to

moderate correlation (Mangelsdorf, Shoppe, & Buur, 2000). Parental ratings have also been shown to have higher predictive validity than observer ratings for later outcomes (e.g., Hart, Field, & Roitfarb, 1999). Furthermore, as parents see their children most and in several different situations, they most likely know them best (Prior, 1992; Rothbart & Bates, 1998). Finally, even though parental ratings have been shown to include both subjective and objective components (Mebert, 1991), empirical studies have shown that the subjective component does not overshadow the objective component (Bates & Bayles, 1984; Mebert, 1991). Given the arguments supporting the validity of parental reports of child temperament, maternal reports were used in the current study as reflecting within-child temperamental characteristics.

1.3.1.2. Temperament and personality

The role of temperament as a predictor of personality is explicit in its very conceptualization (Goldsmith et al., 1987). In fact, Buss and Plomin (1984) referred to temperamental characteristics as "early emerging personality traits". Despite this emphasis, very few studies to date have focused on whether childhood temperament predicts personality in adulthood (Caspi, 1998, 2000; McCrae et al., 2000).

There have been no empirical findings or hypotheses on the relationship between early appearing temperament traits and dispositional optimism and pessimism. Of the other personality factors discussed in the literature, neuroticism is suggested to be closely related to pessimism (the opposite pole of optimism), or even to be a super factor spanning (even though not completely covering) its variation (Scheier et al., 1994). It has been proposed that the temperament dimensions of negative affectivity and behavioral inhibition (especially the fear component) are likely to be linked to the constellation of neuroticism (Caspi, 1998). Further, the component constellation of the behavioral styles called "undercontrolled", (which closely resembles the "difficult temperament" constellation put forward by Thomas, Chess & Brich, (1968)), measured at early childhood has been shown to be related to high scores on traits indicating neurotisicm/negative emotionality at the ages of 12 (Asendorpf & van Aken, 1999), 18 (Caspi & Silva, 1995) and 26 (Caspi et al., 2003). *Given the lack of prior studies on temperament and dispositional optimism and pessimism, the aim of Study I was to shed light on this issue by analyzing the relationship between mother-reported difficult temperament in childhood and self-reported dispositional optimism and pessimism in adulthood over 21 years.*

1.3.2. Parenting and dispositional optimism and pessimism

Most of human life is lived in the context of the individual's relationships with others. As such, this assumes greater importance than many other environmental effects. The relationship context has been shown to influence an individual's current behavior, and often to change him or her (e.g., mental, physical, and spiritual properties) (Reis, Capobiaco, & Tsai, 2002). By changing the individual, relationship experiences also influence his or her developmental course (Reis et al., 2002).

In particular, childhood has long been thought to be a period when an individual's longstanding characteristics are especially plastic and open to social influences (Maccoby, 2000). During this time parents provide almost exclusively the relationship environment in which the child spends his or her time (Maccoby, 2000). Furthermore, given the limited context of early-life experiences, relationships with parents have been suggested to have a greater formative power than those entered into later in life (see Collins, Maccoby, Steinberg, Hetherington, & Bornstein, 2000; Maccoby, 2000; McCrae et al., 2000). The parent-child relationship is commonly described in terms of parenting or child-rearing. Parenting is thought to influences the child's later outcomes via the socialization process, the aim of which is to promote the acquisition of the characteristics and knowledge to function adequately as a member of society (Gallagher, 2002; Maccoby, 1992, 2000).

1.3.2.1. Parenting as a developmental context

Parenting is a multi-level, hierarchical concept. At the highest level are parental styles that represent the super-ordinate context, consists of a constellation of attitudes towards the child and affects all lower-level expressions (Darling & Steinberg, 1993; Holden & Miller, 1999). It is also the least situation-specific level (Darling & Steinberg, 1993; Holden & Miller, 1999). On the next level of the hierarchy are global child-rearing values reflecting parents' enduring principles, followed by specific attitudes (taking into account the child's gender, for example), behavioral intentions, and observed behaviors (Holden & Miller, 1999).

Many different parenting styles have been identified. The most well-known and frequently used conceptualizations are Baumrind's triarchy of authoritative, authoritarian and permissive styles (Baumrind, 1980), and those assessing warmth and control styles (see e.g., Bates & McFadyen-Ketchum, 2000; Gallagher, 2002; Holden & Miller, 1999). The term parental warmth incorporates factors such as acceptance, positive affect, sensitivity and responsiviness towards the child, while parental control implies factors

such as harsh discipline, intrusiviness, restrictiviness and authoritarianism. Positive aspects of control have also been acknowledged i.e., developmentally appropriate involvement, discipline and monitoring (e.g., Baumrind, 1980). In the current study, parenting style was measured along dimensions related to warmth and negative control. For the longitudinal study, the circumplex model of parenting referred to by Schaefer (1959) as hostile maternal child-rearing, involving maternal perceptions of low emotional closeness to the child, low tolerance of child's behaviors and feelings that the child needs strict disciplinary actions, was used. Given the cross-sectional design, attachment related recollections of childhood parenting were measured in terms of parental care, overprotection and love inconsistency, as well as of family cohesion and conflict.

Parenting has been suggested typically to account for from 20% to 50% of the variance in child outcomes (see Maccoby, 2000). Higher levels of parental warmth and sensitivity and lower levels of extreme control have been shown generally to be related to positive outcomes such as low levels of depression, high self-esteem, secure attachment and more positive personality factors (e.g., Deihl, Vicary, & Deike, 1997; Katainen et al., 1999; Rey, 1995; Räikkönen et al., 2000). In addition, to influencing these internal characteristics, parenting has also been shown to be associated with externally observable characteristics. For example maternal sensitive responsiveness has been shown to decrease her infant's negative emotionality (van den Boom, 1994). There are few studies on dispositional optimism and pessimism and none that are longitudinal. *Consequently, the aim of the present thesis is to shed light on the association between childhood parenting and adulthood optimism and pessimism. The objective of Study I was to investigate the longitudinal relations between maternal hostile child-rearing attitudes in childhood and dispositional optimism and pessimism in adulthood. Study IV tested whether previously found associations between retrospective reports of parenting and dispositional optimism and pessimism are replicable using attachment related recollections of childhood family of origin.*

1.3.2.2. Parenting in the context of the child's temperament

Parenting and its effects on the child's later outcomes have been suggested to be dependent on the child's temperament. First, the child's temperamental differences may influence the effect of parenting by moderating the impact of reinforcement and punishment, for example. According to *temperament x environment* interaction models, temperament could be viewed as a potential buffer or as a vulnerability factor for various environmental stressors (Bates & McFadyen-Ketchum, 2000; Collins et al., 2000;

Rothbart & Bates, 1998; Wachs, 1992). For example, Kochanska (1991; 1997) showed that the influence of the maternal disciplinary style on the development of the conscience was moderated by differences in temperament. Gentle parenting techniques that de-emphasized power assertion promoted the development of the conscience among fearful children whereas such techniques did not make any difference to fearless children. Bolder children were more influenced by maternal responsiveness and a close emotional bond. Colder et al. (1997) found that high fearfulness in combination with harsh parental discipline was related to aggression and depressive symptoms, whereas harsh parenting was not as strongly related among less fearful children. Further, Bates et al. (1998) found that parental firmness and restrictiviness were more effective in preventing externalizing behavior among initially difficult, impulsive, and/or resistive children than among those temperamentally less difficult. Empirical findings regarding temperament x environmental interactions remain sparse, however, and are rarely studied in the context of personality development. *Consequently, the aim of Study I was to find out whether the child's high or low temperamental difficultness functions as a buffer or as a vulnerability factor between hostile child-rearing attitudes and dispositional optimism and pessimism.*

Moreover, even though parenting has most commonly been studied as a parental trait, independent of the child's characteristics (Holden & Miller, 1999), the child-effects approach recognizes the child as an active agent (Bell, 1968; Lytton, 1990). In line with that view are those proposing that parental and child characteristics, as well as contextual factors, affect parenting (e.g., Belsky, 1984; Clark, Kochanska, & Ready, 2000; Holden & Miller, 1999; Kochanska, Friesenborg, Lange, & Martel, 2004). The possibility that children shape parenting is also recognized in models that discuss the role of temperamental characteristics as directors of development. Individual differences in temperament that appear early are proposed to elicit responses from the environment that are in line with their temperamental characteristics (environmental elicitation: Caspi, 1998; evocative transaction: Scarr & McCartney, 1983). The empirical findings have been consistent with suggestions that the quality of parenting is dependent on the characteristics of the child. For example, Lee and Bates (1985) found that mothers of children rated as difficult used intrusive control tactics more frequently than mothers of easy or average children. Clark, Koschanska, and Ready (2000) found that children's negative emotionality evidenced a trend toward predicting mothers' higher use of power assertion. Van den Boom and Hoeskma (1994) showed that maternal behavior was systematically more positive with nonirritable than with irritable infants. Further, Buss

(1981) found that the child's high activity level predicted parenting that reflected impatience, hostility and the use of power struggles. Finally, given that it is not only parents that affect the child's outcomes, and that the child also affects the parents, a more general model of the reciprocal or transactional nature of the parent-child relationship would be useful (Collins et al., 2000; Maccoby, 1992). A*ccordingly, a further aim of Study I was to find out whether the child's difficult temperament is related to adulthood optimism and pessimism via maternal child-rearing attitudes, or whether maternal hostile child-rearing attitudes affect adulthood optimism and pessimism by shaping manifestations of the temperament.*

1.3.3. The origins of dispositional optimism and pessimism from the perspective of self-esteem

Self-esteem has been conceptualized as evaluative judgments about the self (e.g., Coopersmith, 1967; DuBois, Felner, Brand, Phillips, & Lease, 1996), or as overall feelings of worth or value as a person (e.g., Harter, 1998; Rosenberg, 1979). Depending on the theoretical framework, it could be seen as a multidimensional construct consisting of separate values for distinct facets (e.g., family, school, body image, general self-worth) (Harter, 1999), or as a global construct covering all aspects (e.g., Coopersmith, 1967). In a different context, it has been suggested that the constructs under investigation should be measured at the same levels of globality (see e.g., Scheier & Carver, 1985), and thus self-esteem was treated as a global construct in the current study.

1.3.3.1. Theoretical and empirical associations between self-esteem and dispositional optimism and pessimism

Dispositional optimism and pessimism and self-esteem are related at the conceptual level. Self-esteem represents a sense of self-worth, carrying the implication that one will be accepted rather than rejected by others, and that one is not a failure in one's life. According to Scheier, Carver and Bridges (1994), these consequences of cause involve positive versus negative outcomes, thus linking self-esteem conceptually with dispositional optimism and pessimism. Bono and Judge (2003) have suggested that self-esteem and dispositional optimism and pessimism are related via the variance they share in the concept of core self-evaluation. Scheier and Carver (1987) also suggested that one source, even though certainly not the only one, of the outcome of expectations is in evaluations of the self. In yet another article, Scheier and Carver (1993) propose that it is reasonable to argue that optimism and pessimism is partly learned from prior experiences

of success and failure. Experiences of success and failure are also among the main predictors of individual differences in self-esteem (see e.g., Harter, 1999; Helmke & van Aken, 1995).

The conceptual similarity between self-esteem and dispositional optimism and pessimism is also supported by studies showing that they have similar correlates. Like high levels of dispositional optimism high levels of self-esteem also has beneficial effects on social, mental and physical well-being: for example it has been shown to be related to all-cause mortality (Stamatakis et al., 2004), depression (Hammond & Romney, 1995), resilience to stressful life events (Dumont & Provost, 1999), and social relationships (Decovic & Meeus, 1997). However, even though dispositional optimism and pessimism and self-esteem share some common outcomes, there are differences as well. For example, Scheier, Carver and Bridges (1994) showed that both dispositional optimism and pessimism and self-esteem predicted depression, physical symptoms and a variety of coping mechanisms: when self-esteem was controlled dispositional optimism and pessimism remained significantly related to these outcomes, with the exceptions of coping mechanisms of restrain, the use of humor and denial. Fontaine and Jones (1997) showed that both constructs were separately related to depression measured during pregnancy and two weeks postpartum. However, self-esteem predicted depression even after the controlling of disposition, but optimism and pessimism did not significantly improve the prediction of depression after the controlling of self-esteem. Robert, Roberts and Chen (1998) demonstrated that both self-esteem and dispositional optimism and pessimism had independent effects on suicidal thinking. Carvajal, et al., (1998) found that they were both significantly related to the lifetime use of alcohol and smoking cigarettes and the use of marijuana when studied separately, but when examined simultaneously dispositional optimism and pessimism was related to substance use but self-esteem did not improve the prediction. Aspinwall and Taylor (1992) showed that both constructs predicted avoidant coping even after the mutual effects had been controlled for, however only dispositional optimism and pessimism predicted active coping, and only self-esteem predicted seeking support.

The partial conceptual similarity between dispositional optimism and pessimism and self-esteem is supported by findings indicating that, cross-sectionally, these constructs show substantial correlations ranging from 0.67 in 11- to –14-year-old adolescents (Carvajal et al., 1998), from 0.48 to 0.67 in university undergraduates/college freshmen (Aspinwall & Taylor, 1992; Brissette et al., 2002; Scheier & Carver, 1985; Scheier et al., 1994), from 0.62 in HIV-infected men and women

(Andersson, 1999), .73 and .75 for working-age women and men (Mäkikangas & Kinnunen, 2003), up to 0.80 in 20-43-year-old pregnant women (Fontaine & Jones, 1997). Furthermore, we have recently shown that, over a period of 21 years, both the level of and change in self-esteem during adolescence are associated with dispositional optimism and pessimism in adulthood among a representative sample of Finns (Heinonen et al., submitted). More specifically, we found that self-esteem at ages 12 and 18 significantly predicted higher levels of dispositional optimism at the age of 33, explaining 5 and 19 percent of the variance, respectively. Self-esteem at the age of 18 also significantly predicted dispositional optimism and pessimism at the age of 33 after the level of self-esteem at the age of 12 had been controlled for. This rank-order change in self-esteem over six years explained 13 percent of the variance in dispositional optimism and pessimism. Results also revealed that adolescents scoring in the top tertile of self-esteem at the age of 12 and 18 showed significantly lower levels of pessimism than those whose self-esteem had changed or stayed high during the adolescent years. We found no gender differences. The results support the suggestion that the constructs have both common as well as non-overlapping aspects.

As self-esteem and dispositional optimism and pessimism are both conceptually as well as empirically closely related, determining whether they share similar developmental paths may further inform us whether they are more similar than different. Furthermore, as both the level of and change in self-esteem during adolescence have been shown to significantly affect the development of optimism and pessimism, the development of self-esteem from childhood up to and during adolescence may also tell us something about the developmental paths of dispositional optimism and pessimism. The following sections describe the potential developmental underpinnings of self-esteem from both theoretical and empirical perspectives.

1.3.3.2. The development of self-esteem

It has been suggested that about 30% of the variance in self-esteem is explained by hereditary factors (e.g., Kendler, Cardner, & Prescott, 1998). Environmental influences are also very strong, although views on what is the primary source of self-esteem vary according to the theories and the definitions used. A pioneer of self-psychology, William James (James, 1890), suggested that self-esteem develops through one's own feelings of competence (Gecas & Shwalbe, 1983; Higgins, 1991). The major determinants of the level of self-esteem in this context are seen as being the relation between the importance of success and perceived competence. A sense of competence, in turn, reflects the

discrepancy between one's real performance and one's ideal goal. The ideal self is a person's representation of what she or he wants to be or feels that she or he should be. Early symbolic interactionists such as Cooley (1902) and Mead (1934), on the other hand, placed more emphasis on social interactions. The primary source of self-esteem has been suggested to be the opinions of significant others, which profoundly shape self-evaluation. A similar view is incorporated into attachment theory (e.g., Bowlby, 1969), which highlights the influence of mother-child interactions on self-development. A child whose needs are satisfied and who experiences his or her parents as totally accepting, emotionally available and loving will view him- or herself as absolutely good and loveable (e.g., Bowlby, 1969).

Self-evaluations have been suggested to start to develop in early childhood (see, Bowlby, 1969; Harter, 1998), and to be relatively stable after adolescence (Block & Robins, 1993; Kling, Hyde, Showers, & Buswell, 1999; O'Malley & Bachman, 1983). However, although self-esteem has been shown to have substantial rank-order stability over time (Alsaker & Olweus, 1992; Block & Robins, 1993; O'Malley & Bachman, 1983), there are also considerable variations in its developmental trajectories (Block & Robins, 1993; Deihl et al., 1997; Hirsch & DuBois, 1991). In particular, it may change during adolescence because the period is characterised by several novel events and experiences, such as pubertal development, increases in cognitive abilities and transition to secondary education, all of which challenge individuals' views of themselves (Caspi & Roberts, 1999; Twenge & Campbell, 2001). In fact, longitudinal studies have shown that adolescence is an important stage in the development of self-esteem (Block & Robins, 1993; McCarthy & Hoge, 1982; see Twenge & Campbell, 2001 for a meta-analysis): the rank-order stability of self-esteem tends to increase from adolescence onwards (Alsaker & Olweus, 1992), and the mean level decreases slightly during the transition from elementary school to junior high, and then rises again (Twenge & Campbell, 2001).

1.3.3.3. Self-esteem in the context of parenting and temperament

As early parental hopes and aspirations usually form the basis of ideal self-representations against which the child evaluates him- or herself (Higgins, 1991); (see also Harter, 1999), and as evaluations received from significant others (e.g., Bowlby, 1969; Cooley, 1902; Mead, 1934), in childhood especially from parents, fundamentally affect self-esteem, the potential influence of parents in its development cannot be dismissed. Empirical findings have, in fact, supported the theoretical discussions in this regard. It has been shown that high self-esteem in children and/or adolescents is related to parental reports of warmth

and acceptance (Coopersmith, 1967; Decovic & Meeus, 1997). Moreover, schoolchildren's and/or adolescents' perceptions of authoritative parenting (Carlson, Uppal, & Prosser, 2000), parental warmth (Paulson, Hill, & Holmbeck, 1991), support (Paulson et al., 1991; van Aken & Asendorpf, 1997), and acceptance (Herz & Gullone, 1999; Ohannessian, Lerner, Lerner, & von Eye, 1998), and reports of strong affective ties with parents (Roberts & Bengtson, 1996), are related to high self-esteem. Low self-esteem, in turn, has been shown to be predicted by child and/or adolescent perceptions of their parents as authoritarian (Buri, Luiselle, Misukanis, & Mueller, 1988), as using psychological control, being overly firm (Litovsky & Dusek, 1985) and over-protective (Herz & Gullone, 1999), and their reports of conflicts with their parents (Slater & Haber, 1984). Moreover high adolescent self-esteem has been shown to be related to observations of positive maternal communication (Killeen & Forehand, 1998).

Further, in the context of change in self-esteem, Shek (1998) found, that adolescents' and parental perceptions of low levels of conflict with the father predicted an increase in self-esteem over one year, but that conflicts with the mother did not predict any change. Further, adolescents' perceptions of paternal, but not maternal, favorable parenting characteristics predicted an increase in self-esteem over one year (Shek, 1999). Fenzel (2000) found that social support from parents measured just before their children went to middle school did not predict change in self-esteem during the transition. Finally, Deihl, Vicary and Deike (1997) demonstrated that students who had consistently high levels of self-esteem between the 7th and 10th grades reported retrospectively more satisfactory relationships with their parents than those with a low level of self-esteem during the same period: those whose level of self-esteem increased slightly from the 7th to the 10th grades fell between these two groups.

As mentioned above in Chapter 1.3.2.2., parenting is not independent of within-child characteristics (e.g., temperament) or contextual factors (e.g., role satisfaction) neither are contextual factors or within-child characteristics independent of parenting. The transactional relationship between these factors has not been studied in the context of self-esteem, however.

There are also suggestions that temperament and contextual factors may be directly associated with the child's/adolescents self-esteem. Support for proposals regarding the association between temperament and self-esteem came first from a study showing genetic variance in self-esteem (Kendler et al., 1998). Furthermore, cross-sectional studies have shown that the temperament dimensions of negative mood, withdrawal and rigidity (Windle et al., 1986), and low adaptability and reactivity to the

environment, as well as high distractibility (Klein, 1992), are related to low self-esteem among children and/or adolescents. In addition, there are findings indicating that parents of adolescents with low self-esteem have rated their marriages as less satisfying than parents of adolescents with high self-esteem (Matteson, 1974). However, single mothers' negative perceptions of the maternal role were not related to their adolescent's self-esteem (McLoyd, Jayaratne, Ceballo, & Borques, 1994).

Finally, recent studies indicate that a bi-directional relationship may also exist between self-esteem and parenting. High self-esteem was found to promote perceived parental acceptance over six months (Ohannessian et al., 1998) and favorable parenting characteristics over one year (Shek, 1998), and decreased frequency of parent and adolescent reports of mother-adolescent conflicts over one year (Shek, 1998). Consequently, it has been suggested that the potential bi-directional nature of the associations should be included in any hypothetical model of self-esteem (Ohannessian et al., 1998; Shek, 1998).

All in all, as the level of and change in self-esteem during adolescence is known to be associated with adulthood dispositional optimism and pessimism (Heinonen et al., submitted), its development may also inform about the developmental paths of this dispositional optimism and pessimism. As there are only a few longitudinal studies on self-esteem covering the years from childhood to adolescence and equally few on changes in self-esteem during adolescence, current study focused on these issues. Furthermore, even though there is information regarding parenting and self-esteem, no studies have been conducted that take into account the potential transactional role of the child's or the parents' other characteristics in parenting and thus in the development of self-esteem. *The aim of Study II was to investigate the impact of parental factors (i.e. child-rearing and role satisfaction) and the child's temperament, and their transactional relationship in childhood on the level of self-esteem in adolescence over a six-year period. Study III was carried out in an attempt to find out whether these factors played a role in the change in self-esteem during adolescence (from the age of 12 to 18), and whether there is a bi-directional relationship between these factors and self-esteem.*

1.3.4. The origins of dispositional optimism and pessimism from the perspective of attachment

Working models of attachment incorporate generalized beliefs and expectations of the self, others, and the social world in general (Bowlby, 1969), and are postulated to manifest as attachment styles (e.g., Hazan & Shaver, 1987). Attachment styles have been

classified generally into three or four categories in childhood (e.g., Ainsworth, Blehar, Waters, & Wall, 1978) and in adulthood (e.g., Hazan & Shaver, 1994), or measured as continuous dimensions (Fraley & Waller, 1998). Regardless of the measurement, attachment styles/dimensions develop in the context of security and insecurity. A secure attachment style refers to positive models of the self and others, and to general comfort with closeness to and trust in others, while insecure style refers to negative models of the self and/or others, e.g., to a sense of unlovability, distrust of others, and expectations that others will be unreliable or rejective.

Attachment security and insecurity are suggested to have their roots in the early phases of life. According to Bowlby (1969; 1973), human infants are born with a behavior system aimed at maintaining proximity to others in order to help them to survive and to provide a "secure base" (Ainsworth et al., 1978) for exploring the environment. A child's early experiences of his or her caregiver's responsiveness to his/her attachment needs promote feelings of either security or threat. Security in attachment develops from an early relationship with a nurturing caregiver who is available, sensitive and responsive in times of need, whereas insecurity results from an environment lacking in adequate and reliable caregiving (Bowlby, 1988). Experiences of caregiving in early infancy become encoded as internalized dispositions, i.e., working models, during development (Bowlby, 1973). A fundamental tenet of attachment theory is that these mental models automatically influence thoughts, emotions, and behaviors. Once formed, they are suggested to translate into the attachment styles, secure or insecure, occurring in adulthood relationships (Hazan & Shaver, 1987), to be relatively stable, and to provide, at least at some level, continuity of attachment style over time (Bowlby, 1969). Attachment theory promotes the understanding of personality formation and development in the context of the universal human need to form close affectionate bonds with particular others (Bowlby, 1988).

Empirical evidence indeed gives support to postulations that individual differences in close relationship experiences in childhood are related to individual differences in adult attachment styles. It has been shown that secure adults recollect their parents as being respectful and accepting (Collins & Read, 1990; Hazan & Shaver, 1987), benevolent and non-punitive (Levy, Blatt, & Shaver, 1998) and providing warmth (Collins & Read, 1990) and care (Gittleman, Klein, Smider, & Essex, 1998). They have also characterized the environment of their family of origin as high in warmth and cohesion, and low in conflict (Deihl, Elnick, & Bourbeau, 1998). In turn, insecure adults have described childhood memories of their parents as cold or inconsistent (Carnelley,

Pietromonaco, & Jaffe, 1994; Collins & Read, 1990), punitive and malevolent (Levy et al., 1998), and controlling and low in acceptance, sensitivity, reliability and in the encouragement of independence (Carnelley et al., 1994). Prospectively it has been shown that young adults with secure attachment representation had received more sensitive maternal care in infancy than those with insecure representations (Beckwith, Cohen, & Hamilton, 1999).

1.3.4.1. Theoretical and empirical associations between attachment and dispositional optimism and pessimism

The justification for integrating the attachment-theoretical perspective into research on dispositional optimism and pessimism, in particular, arises from the similarities in theoretical conceptualization: both theories hold that prior experiences are encoded in the mind as generalized cognitive schemas, as internal working models manifested in the form of secure and insecure attachment styles, and as optimistic and pessimistic outcome expectancies that have roots in the model of the self-regulation of behavior. Moreover, attachment-related security and insecurity (Bowlby, 1969, 1973), and optimistic and pessimistic expectancies (Carver & Scheier, 1998, 2001), are particularly salient and suggested to be activated during adverse events such as periods of perceived danger, threat, stress or illness. Finally, as a self-regulatory model of behavior, attachment theory uses feedback processes as a behavioral organizing principle (Bowlby, 1969; Carver & Scheier, 1998): the goal is to maintain the desired level of closeness to the attachment figure, neither too little nor too much, and deviations from this desired level cause changes in behavior (Bowlby, 1969).

The stress- and adjustment-related associates of secure and insecure attachment styles are also similar to those of optimism and pessimism. Attachment security is related to efficient affect self-regulation (see Fuendeling, 1998 for a review), to appraising negative events as less threatening (Mikulincer & Florian, 1995), to experiencing less distress in the face of loss (Birnbaum, Orr, Mikulincer, & Florian, 1997), to problem-focused modes of coping (for a review, see Mikulincer & Florian, 1998), to seeking and perceiving support from friends (Ognibene & Collins, 1998), to having more people in the support network (Priel & Shamai, 1995), to having greater trust towards others in general (Baldwin, Keelan, Ferhr, Enns, & Koh-Rangarajoo, 1996; Collins & Read, 1990; Miller & Noirot, 1999; Wallace & Vaux, 1993), to having more positive expectations (Collins, 1996; Feeney, 1998; Pietromonaco & Carnelley, 1994) and making more positive attributions of partner behavior (Feeney, 1998), to more positive self-views

(Collins & Read, 1990; Mikulincer, 1995), and to higher self-efficacy (Cozzarelli, Sumer, & Major, 1998).

Since both secure attachment and high levels of optimism are considered to be inner resources that help a person to positively appraise stressful experiences and to constructively cope with these events, parallels between well-being outcomes of secure attachment and optimism are also clear. Dispositional optimism and security in attachment on the one hand, and pessimism and insecurity on the other, predict optimal and less optimal psychological and physical health respectively (for reviews, see Lopez & Brennan, 2000; Maunder & Hunter, 2001; Peterson & Bossio, 2001; Scheier & Carver, 1985, 1987, 1992; Scheier et al., 2001).

1.3.4.2. Specific and generalized attachment representations

Although the main line of research suggests that an individual's attachment style is consistent across all relationships, there is also evidence that individual's attachment security varies according to the relationship. People have been shown to have multiple models of attachment that change in their level of specificity (e.g., may refer to relationship-type schemas or relationship-specific schemas) (Asendorpf & Wilpers, 2000; Baldwin et al., 1996; La Guardia, Ryan, Couchman, & Deci, 2000). Further, the stability of perceived attachment security has been demonstrated to be weaker than that of personality traits (for a short review, see Asendorpf & Wilpers, 2000). Accordingly, recent literature suggests that attachment styles should also be regarded as relationship qualities and not solely as personality components (Asendorpf & Wilpers, 2000; Baldwin et al., 1996; Neyer, 2002).

These two different lines of thought have fuelled discussion about the appropriate level of analysis of attachment style: the person or the relationship. In between these two more or less deterministic views of attachment as a pure relationship factor or as a pure personality factor, strongly influenced by the internal working model that develops early on, are notions of the inter-individual organization of different attachment styles. Collins and Read (1990) proposed that the structure of relationships may be hierarchical, i.e. the core or default working model is at the highest level of abstraction and the more relationship-specific ones are at the lower levels. Baldwin et al. (1996) suggested that the structure of relationship knowledge is more like a tangible web than a hierarchy, and the their general attachment style represents relative overemphasis on one type of attachment experience. It was shown that people using different attachment styles experienced more relationships that matched their own general style:

for example, participants with more secure styles reported more secure relationships than those in the other groups (Baldwin et al., 1996).

While the discussion continues on the appropriate levels of analysis of attachment other studies are focusing on the predictive validity of different levels of attachment classification. It has been shown that relationship-specific and more general mental models of attachment are not identically related to outcomes. For example, specific mental models were found to be more strongly related to relationship-specific outcomes such as feelings of romantic love and relationship satisfaction than general mental models (Cozzarelli, Hoekstra, & Bylsma, 2000). General models were rather related most strongly to measures of overall psychological adjustment (Cozzarelli et al., 2000). *Even though the attachment-theoretical perspective does seem to offer a logical framework for studying dispositional optimism and pessimism, no study has yet attempted this. Study IV aimed to reveal the association between relationship-specific mental models of attachment (i.e. childhood parent-child and adulthood relationships), as well as general representations of attachment security (including both childhood and adulthood mental models) and dispositional optimism and pessimism.*

1.3.5. Gender differences

Even though no systematic gender differences have been found in levels of dispositional optimism and pessimism (e.g., Chang, 1998; Räikkönen et al., 1999), they may exist in its developmental paths. For example, previous studies have indicated that gender may play an important role in the development of self-esteem, which is a closely related concept (see 1.3.3.1). First, men have reported higher levels of self-esteem than women (Block & Robins, 1993; Josephs, Markus, & Tararodi, 1992; Kling et al., 1999), and men's self-esteem has been shown to increase slightly over time, whereas women's self-esteem has been shown to decrease (Block & Robins, 1993). Second, it has been suggested that women's self-esteem consolidates earlier in adolescence than men's, and may thus be less influenced by immediate encounters (Block & Robins, 1993; Thorne & Michalieu, 1996). Third, recent studies (Block & Robins, 1993; Josephs et al., 1992; Thorne & Michalieu, 1996) have found that women and men differ qualitatively in self-esteem: it has been shown to be more dependent on important others in women, on independent achievements in men. It is also worth noting that sociocultural expectations are gender-dependent (Block, 1983), and that gender differences exist in the associations between temperament and family factors (e.g., Prior, 1992). *Consequently, gender was taken into account in Studies I-IV.*

1.4. Summary of the aims of this study

The main aim of the present study was to contribute to the literature on the developmental correlates and underpinnings of dispositional optimism and pessimism, including within-child characteristics, the environment and related mental models (i.e. self-esteem and attachment), as well as the interrelations between these factors. Four separate studies were conducted.

1.4.1. Study I

The aim of Study I was to investigate the role of difficult temperament and hostile child-rearing attitudes, as well as their transactions and interactions during childhood in the development of adulthood dispositional optimism and pessimism over 21 years.

> Both difficult temperament and hostile child-rearing attitudes measured in childhood were hypothesized to be related to higher levels of adulthood pessimism. Furthermore, temperament was hypothesized to be in a transactional relationship with parenting in the development of optimism and pessimism: in other words, a difficult temperament was proposed to promote hostile child-rearing attitudes and vice versa. Finally, the impact of hostile child-rearing attitudes on adulthood dispositional optimism and pessimism was studied in a group scoring high and low on the difficult-temperament constellation. Earlier literature gave no basis for putting forward a specific hypothesis.

1.4.2. Studies II and III

Self-esteem has been proposed to be closely related to dispositional optimism and pessimism both conceptually (e.g., Scheier et al., 1994) as well as empirically (e.g., Heinonen et al., submitted; Scheier et al., 1994). The first aim of Study II was to further clarify the conceptual similarities and differences between these concepts by determining whether they shared similar temperamental and parenting correlates during childhood. Furthermore, both Study II and Study III were motivated by the fact that we have shown with a sample derived from the Cardiovascular Risk in Young Finns study both the level of and change in self-esteem to be relevant underpinnings of adulthood dispositional optimism and pessimism (Heinonen et al., submitted). Consequently, a further aim of Study II was to consider the predictors of adolescent self-esteem from childhood to

adolescence, and the aim of Study III was to identify the predictors of changes in self-esteem during adolescence. Both studies analyzed the role of difficult temperament and parental factors (i.e. child-rearing and role satisfaction), as well as the transactions between them. Furthermore, Study III addressed the potential bi-directional relationship between self-esteem and parent-reported factors.

Both child- and parent-related factors, as well as their transactions, were hypothesized to be important for the development of self-esteem: temperamental difficultness and parental negativeness, in terms of hostile child-rearing attitudes and role dissatisfation, were suggested to be related to lower levels of and a decrease in self-esteem during adolescence. Furthermore, it was hypothesized that lower levels of self-esteem during adolescence promote more negative parenting. Finally, given the relatively high correlates between self-esteem and dispositional optimism and pessimism, the developmental paths of self-esteem during childhood were hypothesized to be more similar to than different from those of dispositional optimism and pessimism.

1.4.3. Study IV

The aim of Study IV was to test the relationship between attachment insecurity and dispositional optimism and pessimism in terms of attachment-related recollections of childhood family of origin and adult attachment styles, as well as of generalized representations of attachment insecurity.

Attachment-related recollections of childhood family of origin (i.e. parental care, overprotection and love inconsistency, and family cohesion and conflict), as well as adult attachment dimensions (i.e., closeness, dependency and anxiety) reflecting more insecure attachment, were hypothesized to be positively related to each other and to higher levels of pessimism. Moreover, the generalized representation of attachment insecurity (including both childhood attachment-related recollections as well as the adult-attachment dimension) was hypothesized to be associated with more pessimistic outcome expectations.

2. METHODS

2.1. Outline of the study and the selection of the participants

The issues in question were examined in the context of two different on-going studies. The participants in Studies I-III were derived from the Cardiovascular Risk in Young Finns study, and those in Study IV from the study of neonatal and early-childhood predictors of hypertension development (Glaku).

2.1.1. The Cardiovascular Risk in Young Finns study

2.1.1.1. Outline of the study

The Cardiovascular Risk in Young Finns study was initiated in 1980 (preceded by two pilot studies in 1978 and 1979). It was designed as a collaborative effort involving all university departments of pediatrics and medicine, and several other institutions in Finland, to examine the development of biological and behavioral risk factors of coronary heart disease and their determinants in children and adolescents in different parts of the country. Follow-up studies were carried out in 1983, 1986, 1989, 1992, 1997, and 2001. The study protocol was approved by the Ethics Committees of each participating university (Åkerblom et al., 1991).

2.1.1.2. Sample selection

In order to ensure a representative population-based sample of Finnish children and adolescents, subjects from different parts of Finland, as well as from rural and urban communities were invited to take part in study. For practical reasons, the study was carried out in the five university cities with medical schools (Helsinki, Kuopio, Oulu, Tampere and Turku), and in rural municipalities in the corresponding vicinities. 60 boys and 60 girls aged 3, 6, 9, 12, 15, and 18 years were randomly selected in each area the Social Insurance Institution's population register being used as a sampling frame. The register covers the whole population of Finland and is continuously kept up-to-date. In order to ensure equal and sufficiently large samples from both west and east, the sample size from the easternmost areas (the urban and rural areas of Kuopio) was twice that of the other areas. The initial sample for the Cardiovascular Risk in Young Finns study consisted of a total of 3596 participating subjects (83.2% of those invited). All eligible participants have been invited to take part in the follow-up investigations (Åkerblom et

al., 1991). The participation rates in the follow-ups were 83%, 78%, 78%, 67%, and 66% respectively from 1983 to 2001.

The study protocol comprised physical and biochemical examinations, as well as questionnaires concerning the parents' and their children's psychological characteristics, the family socioeconomic background, and the children's, parents', and grandparents' state of health. The questionnaires used in the initial study phase were mailed to the mothers and returned when the children/adolescents were brought to the hospital for medical examination related to the study. In the subsequent follow-ups regarding the developmental period of adulthood, the questionnaires were mailed directly to the participants to be completed at home and returned by mail.

2.1.1.3. Participants

Table 1 presents the ages of the participants at the baseline and at follow-ups in separate studies.

Study I. The participants (n = 509) were the two youngest age cohorts from the Cardiovascular Risk in Young Finns study, who were three and six years of age at the baseline, and on whom the complete data on all the study variables were available for the baseline and for the three- and 21-year follow-ups.

Study II. The participants (n = 824) were two age cohorts of the Cardiovascular Risk in Young Finns study, who were six and nine years old at the baseline, and from whom data on all of the study variables were available at the baseline and at the three- and six-year follow-ups.

Study III. The participants (n = 313) were the age cohort of 12-year-olds on whom the complete data on all the study variables were available for the baseline and for the follow-ups three and six years later.

2.1.2. The Glaku project: neonatal and early-childhood predictors of hypertension development

2.1.2.1. Outline of the study

The Glaku project was initiated in 1998. It was designed to examine the neonatal and early childhood predictors of hypertension development, as well as normative psychological development in childhood. It is a collaborative study involving the departments of psychology and medicine, at Helsinki University, and the department of pediatrics and neonatology at Helsinki City Maternity Hospital.

The Institutional Review Board of the University of Helsinki approved this project, and the participants gave their informed consent (see also Strandberg, Järvenpää, Vanhanen, & McKeigue, 2001).

2.1.2.2. Sample selection

The study sample was collected between March and November of 1998 in Helsinki City Maternity Hospital (Kätilöopiston sairaala). The hospital is one of the principal maternity hospitals in Helsinki, with approximately 4 500 births per year. The midwives in four regular maternity wards were asked to give a questionnaire to all women with singleton healthy births in which both parents were of Finnish origin. During this period there were 2746 births that would have been eligible. For reasons connected with the vacation period of the midwives, some mothers did not receive the questionnaire (only 30 refused to participate). However it is not likely that this involved selection bias, since the midwives were unaware of the exact aims of the study (Strandberg et al., 2001).

A total of 1049 mothers completed the questionnaire, which included questions on antenatal stress and nutrition, and on other lifestyle variables, as well as a question eliciting permission to examine their maternity records. Of these 1049 mothers, the first 500, as well as the biological fathers, were invited to participate in a psychological survey on child development. Of these 500 families, a total of 328 (65.6%) family units (mother and/or father) returned the questionnaire sent to them by mail approximately six months after the delivery (mean = 6.3, SD = 1.4 months). Of these family units, data on both biological parents was simultaneously available on 180 units, 141 questionnaires were returned only by the mother and seven only by the father. In total, 321 mothers and 187 fathers returned the questionnaire.

2.1.2.3. Participants

The participants were the parents who participated in the psychological survey. A total of 423 participants (278 women and 145 men) provided data on all of the variables used in Study IV.

2.2. Measures

Table 1 presents the measures used in the four separate studies.

Dispositional optimism and pessimism. The respondents' optimistic and pessimistic life orientations were measured by using the Life Orientation Test-Revised (LOT-R: Scheier et al., 1994). The LOT-R is a six-item self-report measure (plus four filler items) that evaluates respondents' generalized expectations of negative (three items) and positive (three items) outcomes. The disposition items are: "In uncertain times, I usually expect the best," "If something can go wrong for me, it will," "I'm always optimistic about my future," "I hardly ever expect things to go my way," "I rarely count on good things happening to me," "Overall, I expect more good things to happen to me than bad." The respondents were asked to rate the extent to which they agreed with the items on a four- *(Study IV)* or five-point *(Study I)* scale ranging from strongly disagree (0 or 1) to strongly agree (4). Subsequent to reverse-scoring, the items reflecting positive and negative outcome expectations were summed, a higher sumscore reflecting a more pessimistic life orientation. Previous studies have established good construct validity and good internal reliability for the LOT-R (Scheier et al., 1994). In current studies (*I, IV*) the Cronbach alpha reliablilities were > 0.78. Moreover, the confimatory factor analysis conducted in Study I confirmed the construct validity in the Finnish sample.

Childhood temperament. The temperament of the child was assessed by the mothers on scales derived from the Health Examination Survey (Wells, 1980). The scales are designed to screen children with potential behavioral problems. They measure stylistic aspects of behavior and are conceptually related to the temperament dimensions defined by Buss and Plomin (1975; 1984) as activity, sociability and negative emotionality.

Activity reflected the child's motor activity and was evaluated on a four-point continuum: (1) always controlled, (2) overactive or restless only occasionally, for instance when tired, (3) continuously more active than the average child, (4) always extremely active and energetic, even restless. *Cooperativity (low)* reflected aspects of the child's social cooperation or lack of it, and was evaluated on a three-point continuum: (1) always very cooperative and responsive to others, (2) sometimes has problems with peers but mostly cooperative, (3) has continuous problems in cooperating with peers. *Negative emotionality* reflected anger and outbursts of aggression. It was evaluated on the basis of responses to three *(Study III)* or six *(Study I* and *II*) items (e.g., "Other children's parents often complain about the child's behavior", "The child often hits, pushes or provokes

other children", "The child uses too many swear words"). At the baseline of the study the items were ranked on a two-point scale (the statement doesn't fit the child – the statement fits the child), and at the first follow-up on a five-point scale (from 1 = totally disagree to 5 = totally agree). The one-item nature of the activity and cooperativity scale prohibited tests of internal consistency. The reliability of the negative-emotionality measure has previously been shown to be acceptably high, ranging from .63 to .81 (see Katainen, 1999; Katainen, Räikkönen, & Keltikangas-Järvinen, 1997, 1998). The stability of the individual dimensions, evaluated as a three-year test-retest (Pearson's *r*), was significant in all studies *(Study I-III)* (*r*s > .23, *p*s < .01, in all age and gender groups).

Together these temperament dimensions refer to a constellation of perceived child difficultness or perceived difficult temperament (see Goldsmith et al., 1987). The construct validity and three-year rank-order stability of the perceived-child-difficultness construct was shown to be high, see the results section of *studies I-III* (see also Räikkönen et al., 2000).

Mother's hostile child-rearing attitudes. Three scales derived from the Operation Family Study (Makkonen et al., 1981) were adopted to assess the mothers' child rearing-attitudes. The first scale, comprising four items, tapped the emotional significance of the child (e.g., "The child is not emotionally significant to me", "I do not enjoy being with the child"), the second scale, which included three items, focused on the mother's tolerance toward the child (e.g., "The child makes me nervous", "The child is a burden to me"), and the third scale, consisting of two items, concerned the disciplinary style of the mother (e.g., "disciplinary actions are regularly needed with the child"). The mothers responded on five-point scale ranging from 1 (totally disagree) to 5 (totally agree), except for the questions on disciplinary style at the baseline, when the scale was 1 (no) to 2 (yes). The reliability estimates of internal consistency for the individual dimensions have been shown to range from .54 to .91 (Katainen, 1999; Katainen et al., 1997; Räikkönen & Keltikangas-Järvinen, 1992). The stability of the individual child-rearing dimensions, evaluated as a three-year test-retest (Pearson's *r*), was significant in all of the studies *(I-III)* (*r*s > .20, *p*s < .01, in all age and gender groups).

The component constellation of these three scales closely resembles the constellation called "a hostile child-rearing attitude" (Schaefer, 1959; see also Holden & Edwards, 1989; Räikkönen & Keltikangas-Järvinen, 1992). According to Schaefer (1959), hostile child-rearing attitudes consist of three elements: the mother's emotional rejection of her child, her feelings that the child is a burden, and her strict disciplinary style. The construct validity and three-year rank-order stability of the construct was shown to be

good, see the results section of *studies I-III* (see also Räikkönen et al., 2000). More detailed information regarding the questionnaire is available in Räikkönen and Keltikangas-Järvinen (1992).

Mother's role satisfaction. The mother's (low) role satisfaction was assessed using scales derived from the Operation Family Study (Makkonen et al., 1981). These one-item scales address the mother's satisfaction with herself as a mother and as a spouse, and with her role at work, evaluated on a scale ranging from 1 (totally agree) to 5 (totally disagree) (e.g., "I am satisfied with myself as a mother"). The one-item nature of the scales prohibited internal consistency testing. The stability of these individual dimensions, evaluated as a three-year test-retest (Pearson's *r*), was significant in all of the studies *(II* and *III)* ($rs > .19$, $ps < .01$, in all age and gender groups).

These three scales together form the "role satisfaction" construct. The construct validity and three-year rank-order stability of the (low) role satisfaction construct was shown to be good (see the results section of *studies II* and *III)*.

Self-esteem. A shortened version of the Coopersmith Self-Esteem Inventory (Coopersmith, 1967; Keltikangas-Järvinen, 1990, 1992) was used. The total score for 18 *(Study II)* or 20 items *(Study III)* was used. The items included "I often feel ashamed of myself" (reverse scored), "I often get discouraged in school" (reverse scored), "I'm popular with kids of my own age", "I'm easy to like" and "My parents and I have a lot of fun together". Self-esteem was evaluated on a three-point scale at the study baseline, and on a five-point scale at the six-year follow-up, ranging from "totally disagree" to "totally agree" at both data-collection points. Cronbach alpha reliabilities were $> .69$ for all age and gender groups, and in all of the examinations.

Recollections of the childhood family context. The participants' retrospective reports of their mothers' and fathers' love, and child-rearing, and of their childhood family environment, were assessed using three instruments. *The Love Inconsistency Scale* (Schwarz & Zuroff, 1979) consists of 26 items evaluating the respondent's memories of their mothers (13 items) and fathers (13 items) as being labile or variable in attitude and in showing love towards them. Sample items include "My mother/father could be warm and affectionate, but sometimes she/he could be cold and cutting towards me", and "I always knew where I stood with my mother/father". The responses were given on a four-point scale ranging from very true (1) to totally untrue (4). The total score was obtained by taking the mean of the items. The items were coded so that higher scores reflected highly inconsistent attitudes and love towards the subject. The Cronbach alpha reliabilities were 0.89 and 0.88 for recollection of maternal and paternal inconsistent

love, respectively *(Study IV)*. *The Parental Bonding Instrument* (Parker, Tupling, & Browne, 1979) consists of 50 items eliciting memory-based responses concerning maternal (25 items) and paternal (25 items) rearing during the first 16 years of the respondents' lives. Sample items include "She/he spoke to me with a warm and friendly voice", and "I felt I could not look after myself unless she/he was around". The responses were given on a four-point scale ranging from very true (0) to totally untrue (3). This instrument yields two subscales of perceived parental behavior: care and overprotection. The subscales were coded so that higher sum scores reflected a higher level of parental care and overprotection. The Cronbach alpha reliabilities were 0.91 and 0.89, and 0.87 and 0.83 for recollection of maternal and paternal care and overprotection, respectively *(Study IV)*. *The Family Environment Scale* (FES: Moos, 1990; Moos & Moos, 1981) evaluated the degree of commitment to and concern about the family among the respondents' childhood family members, and the extent to which these family members supported and helped each other using the 20 items. Sample items include "In my family we trusted each other so much that we could discuss anything", and "In my family we quarrelled/fought a lot". The response options are correct (1) and incorrect (2). The items form two subscales, cohesion and conflict, which were coded so that higher sum scores reflected lower family cohesion and a more conflictual family environment. The Cronbach alpha reliabilities were 0.75 and 0.65 for the cohesion and conflict scales, respectively *(Study IV)*.

Adult attachment. The participants self-rated their attachment dimensions using the Adult Attachment Scale (AAS: Collins & Read, 1990). The AAS consists of 21 items rated on a five-point scale ranging from not at all characteristic of me (1) to very characteristic (5). The scale yields three subscales: *closeness* describes feelings of comfort with closeness to others, and it reflects a secure attachment dimension; *dependency* describes attitudes towards feelings of comfort with dependency on others and also reflects a secure attachment dimension; and *anxiety* describes the fear of becoming abandoned and the desire to get as close as possible, even merge with the other, thus reflecting an insecure attachment dimension. The test-retest reliabilities of the scales have been reported to vary from 0.52 to 0.72 (Collins & Read, 1990). In the current study, the Cronbach alphas ranged from 0.55 to 0.81 *(Study IV)*.

2.3. Statistical analyses

Structural equation modeling was the main statistical method used in all of the studies. Several other analyses were used for comparative purposes, such as the ANOVA, the *t*-test for independent and dependent variables, and Cohen's effect size. *Table 1* summarizes the statistical analyses used.

With structural equation modeling the two-step procedure recommended by Anderson and Gerbing (1988) was used. First, as recommended, the adequacy of the measurement models of the study variables was tested by confirmatory factor analysis (CFA), which enables the reliability and validity of the study constructs to be evaluated. Second, the adequacy of the structural model of *a priori* hypothesized causal associations between the confirmed latent factors was tested (Anderson & Gerbing, 1988). Path analysis was used to test the associations between the manifest variables. A multi-sample procedure (see Jöreskog & Sörbom, 1993) was used to examine whether identical models fitted the data on the girls and the boys (*Study I-III*), and whether there were potential interactions between the predictor variables (*Study I*). Structural equation modeling and path analyses were performed using the LISREL 8.30/8.50 (see Jöreskog & Sörbom, 1993) (*Study I-III*) or Mplus 2.13 program (Muthén & Muthén, 1998) (*Study IV*). Standard model-fitting procedures and the maximum-likelihood-estimation method were adopted.

3. RESULTS

The main results of the four separate studies are summarized in this chapter. The details are to be found in the original publications. The term dispositional pessimism is used throughout to refer to the continuum ranging from optimism (low scores on the LOT-R) to pessimism (high scores on the LOT-R).

3.1. Perceived temperament and maternal child-rearing attitudes in childhood as predictors of dispositional optimism and pessimism in adulthood

The association of a difficult temperament and hostile child-rearing attitudes in childhood with dispositional pessimism in adulthood was tested using CFA and SEM. Details of the analysis are given in Chapter 2.3.

Table 1. Summary of the methods in Studies I-IV

Study	Follow-up year	Age of the participants	Measures	Statistical analyses
I	1980	3-6	Maternal child-rearing attitudes Perceived difficult temperament	Confirmatory factor analysis Structural equation modeling Multisample procedure
	1983	6-9	Maternal child-rearing attitudes Perceived difficult temperament	*t*-test for independent samples
	2001	24-27	Dispositional optimism and pessimism	(Pearson correlations)
II	1980	6-9	Maternal child-rearing attitudes Perceived difficult temperament Role satisfaction of the mother	Confirmatory factor analysis Structural equation modeling Multisample procedure
	1983	9-12	Maternal child-rearing attitudes Perceived difficult temperament Role satisfaction of the mother	ANOVA (Pearson correlations)
	1986	12-15	Self-esteem	
III	1980	12	Maternal child-rearing attitudes Perceived difficult temperament Role satisfaction of the mother Self-esteem	Confirmatory factor analysis Structural equation modeling Multisample procedure Pearson correlations
	1983	15	Maternal child-rearing attitudes Perceived difficult temperament Role satisfaction of the mother	*t*-test for independent and dependent samples
	1986	18	Self-esteem	Cohen's *d* for independent and dependent comparisons
IV	1998/1999		Recollections of childhood family context Adult attachment Dispositional optimism and pessimism	Confirmatory factor analysis Structural equation modeling Pearson correlations *t*-test for independent samples

The measurement model consisted of two *a priori* formulated latent factors at the baseline and at the three-year follow-up, i.e. the mother's hostile child-rearing attitudes and perceived difficult temperament of the child, and the latent factor of dispositional pessimism at the 21-year follow-up (χ^2/df < 1.75, CFI > .94, NNFI > .93, RMSEA < .054). All factor loadings (> .26) were significant (*p*s > .001) and in the expected direction. Coefficients indicative of stability over three years were .56 for child-rearing attitudes and .67 for the perceived-difficult-temperament factor (*p*s < .001). Correlations between the child-rearing and difficult-temperament (measured at the three-year follow-up) factors and the pessimism factor were .22 and .18, respectively (*p*s < .05).

The results of the structural modeling analyses based on adequately fitting confirmatory models indicated that the mother's perceptions of the child as temperamentally difficult at the study entry (at ages 3 and 6) predicted maternal hostile child-rearing attitudes measured at the three-year follow-up (at the ages of 6 and 9) (β = .65), which further predicted scores indicative of higher levels of pessimism at the 21-year follow-up (at the ages of 24 and 27) (β = .21). The model showed an acceptable fit (χ^2/df = 1.93, CFI = 0.96, NNFI = .96, RMSEA = .039) and accounted for five percent of the variance in dispositional pessimism. Multisample procedures showed that the girls and the boys measurement models and structural paths were more similar than different.

Finally, the results obtained in the multisample procedure indicated that temperament did not moderate the relationship between child-rearing attitudes and dispositional pessimism, i.e. the paths between maternal child-rearing attitudes and dispositional pessimism did not differ according to the difficult-temperament groupings of high and low.

In sum, the results showed that difficult temperament and maternal hostile child-rearing attitudes are, as such, important developmental underpinnings of adulthood pessimism. Furthermore, a difficult temperament from the ages of 3 and 6 was shown to promote hostile child-rearing attitudes over three years, which was further shown to be related to higher levels of adulthood pessimism over 21 years. Finally, it was found that the child's temperament did not moderate the association between maternal hostile child-rearing attitudes and adulthood pessimism. No gender differences emerged.

3.2. Perceived temperament, maternal child-rearing attitudes and role satisfaction in childhood as predictors of self-esteem in adolescence

The association of a difficult temperament and parental factors in childhood with self-esteem in adolescence was tested using CFA and SEM. The measurement models for the mother's hostile child-rearing attitudes, role satisfaction, and perceived difficult temperament in her child indicated a good fit for all age (6- and 9-year-old cohorts) and gender groups (χ^2/dfs < 1.73, CFIs $> .90$, RMSEAs $< .061$) and all factor loadings were significant ($> .23$, ps $< .05$) and in the expected direction. Further, all the latent factors showed significant degrees of stability over three years (βs $> .43$, ps $< .05$).

The results of the structural-equation modeling of the direct individual effects of maternal ratings in childhood on self-esteem in adolescence showed that, among the *girls,* the mother's hostile child-rearing attitudes, and low role satisfaction and perceptions of the child as temperamentally difficult at the ages of 6 and 9 were related to low self-esteem in adolescence over 6 years, although not systematically significantly. There was only one significant association among the boys: maternal hostile child-rearing attitudes towards 6-year-old sons measured at the 3-year follow-up predicted the adolescent's low self-esteem at the 6-year follow-up.

Similarly, in terms of the transactional effects of maternal ratings in childhood on self-esteem in adolescence, among the 6- and 9-year-old *girls'* cohorts, the paths from perceived difficult temperament at the baseline to hostile child-rearing attitudes measured at the three-year follow-up ($\beta = .72$ and $\beta = .82$, respectively) and to low self-esteem measured at the six-year follow-up ($\beta = .22$ and $\beta = .36$, respectively), were significant ($\chi^2/df = 1.50$, CFI = .91, RMSEA = .047, and $\chi^2/df = 1.45$, CFI = .93, RMSEA = .044, respectively). The models accounted on average nine percent of the variance in self-esteem. Among the *boys*, there were no significant transactional paths from the childhood maternal ratings to self-esteem at the 6-year follow-up in adolescence.

Multigroup analyses of the measurement models showed that the same model had a good fit for all age and gender groups. Analyses of the structural models indicated, first, that there were no statistically significant differences between the two groups of girls. Second, the girls' model fitted acceptable the boys' data, but the path from hostile child-rearing attitudes to self-esteem, which was significant among the girls, did not reach statistical significance in either group of boys.

In sum, the results showed that maternal perceptions of the child's temperament as difficult was likely to prospectively promote hostile child-rearing over three years, which in turn predicted low self-esteem in adolescence over six years. The paths were significant only among the girls, however.

3.3. Perceived temperament, maternal child-rearing attitudes and role satisfaction as predictors of change in self-esteem from early to late adolescence

CFA and SEM were also used to study the association between difficult temperament and hostile child-rearing attitudes in adolescence, and change in self-esteem from early to late adolescence. As in Study II, the measurement models with an adequate fit in Study III consisted of three a-priori formulated latent factors: the mother's hostile child-rearing attitudes, role satisfaction and perceived difficult temperament of the child (χ^2/df = 1.42, CFI = .91, NNFI = .90, RMSEA = .052). All factor loadings were significant (> .30, *p*s < .01), and the correlations that were indicative of the stability of the latent factors over three years ranged from .55 to .89 (*p*s > .001).

Confirmed measurement models were used as the foundation for the structural-equation modeling. First, structural models were used to test whether the mother's hostile child-rearing attitudes, role satisfaction or perceptions of her child as having a difficult temperament measured at the study entry when the adolescents were 12 years of age, predicted their self-reported self-esteem six years later at the age of 18, after the initial self-reported self-esteem and the correlation between self-esteem and perceived difficult temperament at the baseline had been controlled (cf., Neyer & Asendorpf, 2001). The mothers' hostile child-rearing attitudes, and perceived difficult temperament of their adolescent children predicted lower self-reported self-esteem in late adolescence, after the initial self-reported self-esteem in early adolescence had been controlled (β > |.23|, p's < .01; χ^2/df 's < 1.52, CFI's > .90, NNFI's > .89, RMSEA < .058, R^2 > .18, for the girls and boys combined). Maternal role satisfaction was not significantly associated with adolescent self-reported self-esteem.

Second, a potential transactions between the mother's child-rearing attitudes, role satisfaction and perceived temperament of the child from early to middle adolescence, and self-esteem in early adolescence was looked for in predicting self-esteem in late adolescence after controlling for early-adolescent self-esteem (cf., Neyer & Asendorpf, 2001). The mothers' perceptions of their adolescents' temperament as

difficult at age 12 was related to similar temperament perceptions at the age of 15, which in turn predicted self-reported self-esteem measured in late adolescence at the age of 18, after self-reported self-esteem measured at the study entry at age 12 had been controlled. The model showed an acceptable fit χ^2/df = 1.37, CFI = 0.91, NNFI = .90, RMSEA = .049, and explained 19% of the variance in self-esteem at the age of 18. No evidence was found that maternal child-rearing attitudes or role satisfaction, either indirectly or after controlling for their initial levels, would predict adolescent self-reported self-esteem. Neither were there any significant relations from self-esteem to maternal perceptions, suggesting that the associations between maternal perceptions and self-esteem are not bi-directional.

There were no gender differences, i.e., the same measurement model as well as all of the structural models fitted the data on the girls' and the boys' data equally well.

In sum, the results showed that maternal perceptions of adolescent temperament as difficult at the age of 12 predicted difficult temperament at 15, which was further related to a decrease in self-esteem from early to late adolescence.

3.4. Adult-attachment dimensions, attachment-related recollections of the family of origin, and dispositional optimism and pessimism

The relationship between attachment and dispositional pessimism was assessed by means of Pearson's correlations, and CFA and SEM analyses.

The correlations showed that scores indicative of a more insecure adult attachment dimension (i.e. low levels of closeness and dependency and high levels of anxiety), and of more negative and less positive recollections of the parent-child relationship and family atmosphere (i.e., recollections of the mother and the father as being inconsistent in love, low in care and high in overprotection, and of the family atmosphere as less cohesive and more conflictual), were related to scores indicative of a more pessimistic life orientation.

Using confirmatory factor analysis a measurement model of generalized attachment-related insecurity was specified. Two first-order latent constructs were defined. The first represented adult attachment insecurity and included the three dimensions of closeness, dependency, and anxiety. The second represented childhood attachment-related insecurity and included the sum scores of the childhood-recollection variables of inconsistency in terms of parental love (maternal and paternal), parental child-rearing (maternal and paternal low care and high overprotection), and the family

environment (family cohesion and conflict). These first-order latent adult-attachment and childhood-recollection factors together formed a second-order latent factor representing generalized attachment-related insecurity in close relationships. This CFA model fitted the data well (χ^2 = 17.25, df = 8; CFI = 0.99; RMSEA = 0.052), and all factor loadings were significant (> .44, $p < .001$).

The factor structure confirmed in the CFA model was used as the foundation for the structural-equation model. This model was used to test the association between the latent generalized attachment-insecurity construct and dispositional pessimism, and the potential unique effects of each individual childhood-recollection variable and from each adult attachment dimension on dispositional pessimism (Newcomb, 1994; Wachs, 1996). Generalized representations of attachment insecurity in close relationships, as well as the unique effect of the insecure-attachment dimension of high anxiety, were found to be significantly related to higher levels of pessimism (χ^2 = 22.08, df = 11; CFI = 0.99; RMSEA = 0.049). Together, the modelled variables accounted for 48% of the variance in dispositional pessimism. Further, the χ^2- difference test showed that the model with the specific effect fitted the data significantly better than the one without $\chi^2(1) = 15.11$, $p < .001$. No gender differences were apparent.

Finally, *a post hoc* exploratory factor analysis with the maximum-likelihood method and varimax rotation was conducted in order to ensure that there was no item overlap that might explain the results. None of the items measuring adult-attachment dimensions showed factor loadings of over 0.29 on the dispositional-pessimism factor, and none of the pessimism items showed loadings of over 0.26 on the adult-attachment dimensions.

In sum, the results showed that the latent factor of generalized representations of attachment insecurity (including both childhood-attachment-related recollections of the family of origin as well as adulthood-attachment dimensions), and one specific effect of adult attachment (i.e., anxiety), explained nearly half of the variance in dispositional pessimism.

4. DISCUSSION

The present study investigated the underpinnings of adulthood dispositional optimism and pessimism, i.e., positive and negative outcome expectancies for the future (Scheier & Carver, 1985; Scheier et al., 1994) and associated constructs. Voluminous literature exists linking dispositional optimism and pessimism to psychological and physical well-being and adjustment outcomes, but relatively little research has been conducted on the developmental underpinnings and correlates. The underpinnings of adulthood dispositional optimism and pessimism were studied here in the context of the child's temperament, parenting, self-esteem development and attachment security.

4.1. Main findings

4.1.1. Temperament and parenting

Study I investigated the role of a difficult temperament, i.e., maternal perceptions of the child as high in activity, high in negative emotionality and low in social cooperation, and hostile child-rearing attitudes, i.e., the mother's perceptions of the child as emotionally distant, as a burden, and as in need of strict disciplinary actions. It also focused on their transactions and interactions during childhood at ages three and six, and again at ages six and nine, in the development of dispositional optimism and pessimism in adulthood over 21 years. *The results showed that a difficult temperament and hostile child-rearing attitudes in childhood, indeed, predict more pessimistic outcome expectations in adult life. Furthermore, a difficult temperament at the ages of three to six was shown to promote hostile child-rearing attitudes over three years, which was further shown to be related to adulthood pessimism at ages 24 and 27, over 21 years. However, the child's difficult temperament did not moderate the relationship between maternal hostile child-rearing attitudes and adulthood dispositional optimism and pessimism.*

There are no previous studies of temperament and dispositional optimism and pessimism. However, reference can be made to previous studies on temperament and personality that have shown that the constellation that is closely related to difficult temperament is related to neuroticism (e.g., Caspi & Silva, 1995), which correlates with higher levels of pessimism (Scheier et al., 1994), and to studies showing genetic variance in dispositional optimism and pessimism (Plomin et al., 1992). The findings supported the basic assumption that temperament is the basis of the developing personality (e.g., Buss & Plomin, 1984; Goldsmith et al., 1987), and contribute to the thus far sparse

empirical literature on the longitudinal relations between childhood temperament and the later personality (Caspi, 2000).

With regard to the role of parenting in the development of optimism and pessimism, the results of the current study were in line with the retrospective findings of Hjelle et al. (1996) showing that more positively-tuned recollections of the childhood family are related to higher levels of optimism and with the cross-sectional findings of Ben-Zur (2003) showing that among adolescents, positive relationship (emotional closeness and communication) with parents is associated with higher levels optimism. Furthermore, the additional support for the significant association between parenting and dispositional optimism and pessimism came from Study IV: more negatively-tuned attachment-related recollections of the childhood family of origin (e.g., low parental care, high overprotection, and love inconsistency) were shown to be related to higher levels of pessimism. However, these findings are not in line with those of Brewin, Andrews, and Furnham (1996) showing a non-significant relationship between parental approval and adolescents' current reports of dispositional optimism and pessimism, which could be interpreted from the perspective of parental measures. Unlike in the current study, in Hjelle et al.'s (1996) study and in Ben-Zur (2003) study, Brewin et al. (1996) used a more concrete measure of parental approval (i.e. praise and criticism in specific areas e.g., appearance, behavior with friends) in their assessment. Thus, it is possible that a emotional quality of the care-giving environment (see Darling & Steinberg, 1993) and/or internalized representations of parenting are more important in the development of dispositional optimism and pessimism than specific parental approval. However, generalizations should be made with caution.

However, the results indicate, that temperamental difficultness and maternal hostile child-rearing do not predict dispositional optimism and pessimism 21 years later in isolation from each other. Instead, temperamental difficultness promoted maternal hostile child-rearing three years later in the middle childhood period, which in turn was associated with dispositional optimism and pessimism. The model explained five percent of the variance in adulthood dispositional optimism and pessimism. The results are in line with the proposal that repeated reinforcement from the environment strengthens (or at least maintains) the effects of temperamental characteristics on personality development (Caspi, 1998; Scarr & McCartney, 1983). With regard to the transactions between the child's temperament and parental factors, it was hypothesized, on the basis of earlier literature, that the child's temperamental characteristics may affect parenting factors (e.g., Lee & Bates, 1985; van den Boom & Hoeksma, 1994), and that parental

factors may have an effect on the child's temperamental characteristics (Belsky, Fish, & Isabella, 1991; van den Boom, 1994). According to the results, however, a difficult temperament promoted later hostile child-rearing attitudes but not vice versa. These findings are in line with the results reported here regarding the development of self-esteem, and with the findings of previous studies using the same data set of Finnish children and adolescents regarding the development of hostility (Räikkönen et al., 2000) and depressive tendencies (Katainen et al., 1999). The latent factor of a difficult temperament was also shown to promote the latent factor of hostile child-rearing attitudes (Katainen et al., 1999; Räikkönen et al., 2000), but not vice versa (Räikkönen et al., 2000). These results may indicate that, in fact, a global measure of temperament is less sensitive to change than specific temperament traits.

Finally, however, the results did not support the theoretical proposals that temperament moderates the relationship between the environment and later outcomes (e.g., Caspi, 1998; Wachs, 1992). Earlier empirical findings on the role of the temperament as a moderator of the relationship between parenting and later outcomes remain largely unconfirmed (Kochanska, 1991; 1997 is an exception) and the results seem to attenuate in a longitudinal study design (see Bates & McFadyen-Ketchum, 2000 for a review).

4.1.2. Self-esteem

Self-esteem has been proposed to be closely related to dispositional optimism and pessimism both conceptually (e.g., Mäkikangas & Kinnunen, 2003; Scheier et al., 1994) as well as empirically (Heinonen et al., submitted; Mäkikangas & Kinnunen, 2003). To further clarify the conceptual similarities and differences between these concepts, Study II investigated whether self-esteem shared similar childhood temperament and parenting correlates as revealed in Study I in relation to dispositional optimism and pessimism. Furthermore, we have shown, using a sample derived from the Cardiovascular Risk in Young Finns study, that both the level of and the change in self-esteem during adolescence, from the ages of 12 to 18, are related to later dispositional optimism and pessimism (Heinonen et al., submitted). Thus, the predictors of the level of self-esteem and its change during adolescence may also contribute to our understanding of the origins of dispositional optimism and pessimism. Consequently, Study II examined the predictors of adolescent self-esteem from childhood to adolescence, while Study III concerned the predictors of change in self-esteem during adolescence. Both studies dealt with the role of difficult temperament and parental factors (i.e. child-rearing and role

satisfaction), as well as their transactions. Furthermore, the potential bi-directional relationship between self-esteem and parent-reported factors was taken into account in Study III.

The findings from Study II showed that maternal perceptions of the child's temperament as difficult during childhood was likely to prospectively promote hostile child-rearing over three years, which in turn predicted low self-esteem in adolescence at ages 12 and 15, over six years. The results were significant only among the girls, however. The results of Study III shed more light on the predictors of the rank-order change in self-esteem during adolescence. Maternal perceptions of the adolescent temperament as difficult from the ages of 12 to 15 were related to a decrease in self-esteem from early to late adolescence, from the ages of 12 to 18. Nineteen percent of the variance in change in self-esteem was explained by the temperament and parental factors. Finally, results revealed no significant relationships from adolescent's self-esteem to perceived temperament or to parental factors, suggesting that the associations are not bi-directional.

A comparison of the results concerning the developmental paths of self-esteem and dispositional optimism and pessimism during childhood reveals both similarities and differences. A difficult temperament was shown to have an effect on both self-esteem and dispositional optimism and pessimism via the promotion of maternal hostile child-rearing attitudes. However, the path on self-esteem was significant only among the girls. These similarities and differences support the proposal that self-esteem and dispositional optimism and pessimism are related (Bono & Judge, 2003; Scheier et al., 1994). However, they are not fully overlapping constructs (e.g., Heinonen et al., submitted; Scheier et al., 1994). Moreover, as self-esteem in adolescence has been shown to be associated with adulthood optimism and pessimism (Heinonen et al., submitted), the extent of these similarities and differences in developmental paths during childhood may shield some light on the potential developmental underpinnings of dispositional optimism and pessimism. As far as the girls/women were concerned, the results suggest that the childhood effects on dispositional optimism and pessimism may be mediated by self-esteem, whereas for the boys/men, childhood experiences of parenting seem to bear a more direct relation. Further studies are needed to support these suggestions.

The findings of the current study regarding change in self-esteem during adolescence, from the ages of 12 to 18, highlight the somewhat changing pattern of predictors compared with the results concerning the childhood period. In both, a difficult temperament at the baseline was shown to predict maternal hostile child-rearing attitudes

and a difficult temperament three years later, but it was only from childhood to adolescence that the effect of temperament on self-esteem was attributable to child-rearing. This may reflect the fact that, even though adolescents still evoke parental responses that are in line with their temperamental characteristics, contextual family factors (e.g., child-rearing and role satisfaction) may become less relevant in adolescence than in childhood (Pekrun, 1990). Further, it may reflect suggestions that parenting practices that are effective at one stage of the child's life may not necessarily be as effective at another, and that similar practices do not necessarily produce the same effects in consecutive stages (see Holden & Miller, 1999). Given the fact that change in self-esteem from the ages of 12 to 18 is related to adulthood optimism and pessimism (Heinonen et al., submitted), future studies are needed to clarify whether the underpinnings of optimism and pessimism are to be found in the temperament or in environmental factors outside the family of origin in adolescence, which are, in turn, potentially mediated via self-esteem.

Finally, lack of the hypothesized association from self-esteem to contextual parental factors and perceived temperament may be explained by the source of the reports of parenting. Adolescents' relationship perceptions have been shown to be strongly perceiver determined (Branje, van Aken, & van Lieshout, 2002), and thus adolescents' self-esteem may direct her/his perceptions of parental affection and behaviour (cf., Shek, 1999; Ohannessian et al., 1998) or predict specific parent-adolescents dealings such as conflicts (Shek, 1998). However, the mother's more global perceptions of parenting, her role dissatisfaction or the perceptions of the temperament of the adolescent are not affected by the adolescent self-esteem. The found results may be also interpreted to support the suggestions that surface personality factors (such as self-esteem) are more influenced by core personality factors (e.g., temperamental traits) (McCrae et al., 2000) than vice versa, and that the surface factors effect on relationships can be traced back to effects of associated core traits (Asendorpf & van Aken, 2003).

4.1.3. Attachment security

Study IV tested the relationship between attachment insecurity, in terms of attachment-related recollections of childhood family of origin and adult attachment styles, and dispositional optimism and pessimism. *The results showed that the latent factor of generalized representations of attachment insecurity (including both childhood attachment-related recollections of the family of origin as well as adulthood attachment*

dimensions), and one specific effect of adult attachment (i.e. anxiety) explained 48% of the variance in dispositional optimism and pessimism.

At the same time as affirming the theoretically inferred conceptual relationship between attachment and dispositional optimism and pessimism, the found association may shed some light on the developmental paths of the latter. Even though categorical interpretations of the direction of the relationship cannot be given on the basis of the cross-sectional findings, conclusions can be drawn about the developmental paths of the disposition given attachment-theory postulations about personality development and earlier views on the development of dispositional optimism and pessimism. According to attachment theory (Bowlby, 1969, 1973), early experiences with the caregiver set the stage for predictable cognitive, affective and relational behavioral processes that play a key role in healthy human development. Moreover, Scheier and Carver (1993) have suggested that the development of dispositional optimism and pessimism may well be influenced by coping strategies modeled from or taught by parents. Lopez and Brennan (2000) propose that attachment styles should be viewed as primary and secondary attachment strategies, which are most salient in times of perceived danger, threat, stress or illness. Moreover, empirical studies support the inter-generational transmission of attachment styles (van Ijzendoorn & Bakermans-Kranenburg, 1997). Finally, Mikulincer et al. (1993) suggested that, since security in attachment is associated with more optimistic expectations in personal relationships (Collins, 1996; Feeney, 1998; Mikulincer et al., 1993; Pietromonaco & Carnelley, 1994), optimistic expectations may spill over into situations in which the interpersonal element is minimal, and over time may become a stable aspect of the personality (Mikulincer et al., 1993).

Finally, the adult attachment dimension of high anxiety (indicating the fear of becoming abandoned and the desire to get as close as possible to, even merge with others) had a specific effect on dispositional pessimism, not accounted for by the generalized representations of attachment insecurity. This suggests that more recent relationships may have a particular or additional role to play. These results are in line with those of earlier studies showing that optimists report more positively tuned social relationships, e.g., social interaction or support, than pessimists (Brissette et al., 2002; Räikkönen et al., 1999). Further studies are needed to verify whether recent relationships predict dispositional optimism and pessimism or vice versa.

4.2. General conclusions

The metatheoretical framework provided by Magnusson (1990) and Magnusson and Stattin (1998) may provide a fruitful perspective in interpreting the findings. According to the metatheoretical perspective, there are three different approaches to studying the individual's development and functioning (Magnusson, 1990; Magnusson & Stattin, 1998): the biological, the environmental and the mentalistic. Furthermore, the biological and environmental factors are assumed to affect individual functioning and development directly, but also implicitly by being basic determinants of internal psychological mental models (the variables included in the mentalistic approach). Moreover, different approaches are not considered independent, but are seen as elements of a dynamic, continuous and reciprocal process of interaction (Halverson & Wampler, 1997; Magnusson, 1990).

The metatheoretical framework thus, offers a valuable insight into the development of dispositional optimism and pessimism. First, it was shown that childhood temperament, which is suggested to reflect biologically-based, inherited and stylistic aspects of behavior (Bates, 1989; Prior, 1992; Rothbart, Ahadi, Evans, 2000), is related to later dispositional optimism and pessimism, supporting the suggested importance of biological factors. Second, as parenting factors were shown to be related to later optimism and pessimism, the current findings also point to the important role of environmental factors. Third, the mental models of attachment were associated with the disposition, thus, giving support to the relevance of studying the relationship between different internal psychological characteristics. Furthermore, the current results indicated that the same biological and environmental factors that are related to dispositional optimism and pessimism are related to self-esteem. Given that adolescent self-esteem is related to optimism and pessimism in adult life (Heinonen et al., submitted), these results could be said to be in line with the proposal that biological and environmental factors have an effect on individual development directly, but also via other psychological characteristics that precede or develop alongside. Finally, as suggested in the metatheoretical framework, biological and environmental factors did not predict later outcomes in isolation. A child's difficult temperament predicted parenting style, which was in turn related to later dispositional optimism and pessimism.

However, it should be kept in mind that the metatheoretical framework used to study the development of dispositional optimism and pessimism is not the only one available for studying the development of the personality. For example,

Bronnfrenbrenner (Bronfenbrenner & Morris, 1998) presented a bioecological model of human development, according to which development is a joint function of the person and the environment. Further, the environment is divided into different levels, ranging from the immediate social setting called the mircosystem, which includes e.g., the home environment, to the macrosystem, which incorporates e.g., the values of society. These different levels are assumed to be in close interaction with each other. The current study only concerned the micro-level system. However, as socioeconomic circumstance are known to be related to several risky family factors (Repetti, Taylor, & Seeman, 2002), it might be valuable to study parenting and its effects on the development of optimism and pessimism by taking socioeconomic circumstances into account.

Scheier and Carver (1993) also proposed that both nature and nurture are important in the development of dispositional optimism and pessimism. As pointed out in the context of the metatheoretical framework, there is support for the role of nature in the current results concerning the association between temperament and dispositional optimism and pessimism. As far as nurture is concerned, Scheier and Carver (1993) suggested two potentially important origins of dispositional optimism and pessimism: the parents and earlier experiences of success and failure (Scheier & Carver, 1993). Indeed, the results of the current study can be interpreted from these two different environmental perspectives.

Indeed, Scheier and Carver (1993) suggested that parents provide optimistic or pessimistic outlook for their children by offering them a model, or by directly instructing them how to face difficulties and problems in terms of expectations and coping strategies. According to the results of the current study, parenting styles reflecting higher levels of warmth and lower levels of strict control (in longitudinal as well as in retrospective terms) are related to higher levels of optimism in adulthood. Earlier studies have shown that authoritative parenting (reflecting warmth, acceptance and maturity demands, for example) is associated with parents' mastery-oriented strategy (including the belief in managing the situation and constructing task-related plans) (Aunola, Nurmi, Onatsu-Arvilommi, & Pulkkinen, 1999). Furthermore, it is suggested that parental emotional tone and responsiveness are important in determining the development of children's achievement strategies (Dix, 1991; Nolen-Hoeksma 1995). Children/adolescents from authoritative families have been shown to apply adaptive, task-oriented strategies (Aunola, Stattin, & Nurmi, 2000; Onatsu-Arvilommi, Nurmi, & Aunola, 1998). Mothers who were more negative and hostile have been found to have children who exhibit more helpless behaviors in a puzzle task, and who are less likely to

endorse active problem-solving approaches in frustrating situations (Nolen-Hoeksema, Wolfson, Mumme, & Guskin, 1995). Thus, in the light of these results on the relation between parenting styles and parental and adolescent strategies, the findings of the current study could be interpreted as being in line with the suggestions of Scheier and Carver (1993) regarding the role of parents.

The second potential environmental effect that Scheier and Carver (1993) pointed out was prior experiences of success and failure. In the current study, a difficult temperament in the child was shown to increase hostile child-rearing attitudes in the mother, reflected in her low tolerance of the child's behavior and in her strict disciplinary style, for example. As stated above, this negatively tuned parenting promotes less adaptive strategies among children (Aunola et al., 2000; Nolen-Hoeksema et al., 1995; Onatsu-Arvilommi et al., 1998), which in turn have been shown to be related to failure such as worse achievement (e.g., Carr, Borkowski, & Maxwell, 1991; Nolen-Hoeksema, Girgus, & Seligman, 1986; Nolen-Hoeksema et al., 1995), and thus, according to suggestions, to higher levels of pessimism.

From the perspective of attachment theory (Bowlby, 1969), the experience of success in early childhood may result from the caregiver's ability to provide comfort and security in times of need, while experience of failure may arise from the caregiver's inability to respond to the child's needs appropriately. In later periods, formed attachment security/insecurity may affect the success or failure experienced in other relationships. It has been shown that attachment insecurity is related to more negative and shorter romantic relationships (e.g., Duemmler & Kobak, 2001; Stackert & Bursik, 2003). According to the results of the current study, both childhood and adulthood attachment-related factors reflecting insecurity are associated with more pessimistic outcome expectancies.

Childhood factors were related to self-esteem in adolescence, and self-esteem, in turn, has been shown to be associated concurrently (Mäkikangas & Kinnunen, 2003; Scheier et al., 1994) and prospectively with later optimism (Heinonen et al., submitted). Self-esteem may, at least in part, be assumed to direct the psychological processes that are relevant in the development of dispositional optimism and pessimism. High self-esteem may increase experiences of success by being related to high levels of motivation (Aspinwall & Taylor, 1992) and goal-directed persistence (Di Paula & Campbell, 2002). Further, self-esteem has been shown to be related to attributional tendencies (Campbell, Chew, & Scratchley, 1991): individuals with a low level of self-esteem tend to attribute failure more to global factors, and those with high self-esteem to more specific factors

(Campbell et al., 1991). Consequently, the former may reduce their efforts to pursue any goal because the factors that caused failure in one task may be embedded in all tasks, whereas the latter assume that the causes of failure in one situation are not relevant in another.

In conclusion, the results of the current study suggest that the circle of experiences of success or failure leading to optimism or pessimism respectively may have its origins in childhood factors and in their transactions, and to be further maintained by other psychological characteristics such as self-esteem and attachment style.

4.3. Methodological strengths and limitations of the study

This study has its strengths as well as its limitations. The longitudinal nature of the Cardiovascular Risk in Young Finns study covering the developmental periods from childhood to adulthood is clearly one of the strengths. It offered a unique and previously untapped opportunity to study the predictors of adulthood optimism and pessimism using a prospective design, and enabled some conclusions to be drawn about the direction of the causality between the variables on the basis of time-ordering. First, temperament is assumed to have a genetic basis and to be early appearing (Goldsmith et al., 1987; Rothbart & Bates, 1998). Second, cognitive models of the self are assumed to be formed later and not to become stabilized until late adolescence (e.g., Block & Robins, 1993; Kling et al., 1999). Thus, childhood temperament is likely to be an antecedent of later dispositional optimism and pessimism and self-esteem, not vice versa. Moreover, since temperament and parenting variables were measured twice in childhood and in adolescence, and self-esteem in adolescence, at least some conclusions about the causal relationships between these variables can be drawn. However, more research is needed on the causality of the association between attachment and dispositional optimism and pessimism (which was studied using a cross-sectional design).

Given the fact that the baseline measures of the Cardiovascular Risk in Young Finns study have been taken over 20 years, and that the original aim of that study was to investigate early childhood risk factors for the development of Cardiovascular Heart Disease, not all potential indicators of later dispositional optimism and pessimism could be detected. Moreover, at the time when the dispositional optimism and pessimism measure was included in the study, the earlier measures had already been selected, thus imposing limitations on the potential research questions, and making the analyses so-

called secondary analyses of data (McCall & Appelbaum, 1991). Furthermore, the biological and environmental factors measured during childhood could together explain only five percent of the variance in dispositional optimism and pessimism in adulthood, thus clearly highlighting the need for additional studies.

A clear strength of this study is in the samples used. First, the Cardiovascular Risk in Young Finns study provided a population-based sample of Finnish children and adolescents, and thus the results can be generalized to Finnish children, adolescents and young adults. Attrition is something to be kept in mind, however. It was shown that drop-out from the study was not systematic regarding any of the study measures, but men tended to drop-out more often than women. Another strength of the study was in the use of two different data sets, which enabled to inspect correlates of dispositional optimism and pessimism more broadly, and to replicate findings on parenting using different designs and measures.

The non-standardized childhood measures used to evaluate the mother's hostile child-rearing attitudes, her role dissatisfaction and her perceptions of the child's temperament are not the best currently available, and thus point to a limitation of this study. In addition, the use of a parent as a reporter of the child's temperament has been criticized (Kagan, 1998). However, the confirmatory factor analyses do provide some evidence of the construct validity of the childhood measures (Katainen et al., 1999; Räikkönen et al., 2000). Further, it has recently been demonstrated that maternal perceptions of a difficult temperament predict a self-rated difficult temperament over 17 years (Pesonen et al., 2003). Moreover, maternal subjective evaluations have been shown to be relatively stable (Katainen, 1999; Katainen et al., 1997, 1998; Räikkönen et al., 2000). Nevertheless, future studies would clearly benefit from using standardized measures of the child's temperament as well as observational and interview methods.

4.4. Implications for prevention and intervention

Data showing the beneficial effects of optimism and the negative effects of pessimism on psychological and physical well-being and adjustment imply the need for prevention and intervention in cases of a pessimistic outcome expectancies. Given the early-appearing role of the temperament, and the evidence from the current study of its potential role as a predictor of dispositional optimism and pessimism directly and via parenting, the difficult temperament and its transactions with the environment are the most important aspects of this study from the perspective of prevention and intervention.

As such, one temperament dimension or constellation cannot be said to be better than another. Temperament may be a risk or a protective factor for most outcomes in its transactional relationship with the environment or, in other words, its poorness- or goodness-of-fit with it (Thomas & Chess, 1989; Thomas et al., 1968). A difficult temperament was shown to be related to later negative outcomes via parental negativity in the current study, as it has been in earlier studies (Katainen et al., 1999; Räikkönen et al., 2000). However, parent-child interaction has been shown to be modifiable. For example, positive change in parenting has been achieved even given a modest amount of information regarding not only the child's temperamental qualities but also his or her age-related competence to interact, which increases parental awareness and understanding (Mettetal, 1996; Wendland-Carro, Piccinini, & Millar, 1999). In a follow-up study from infancy to toddlerhood, van den Boom (1995) found that early intervention may also have enduring effects. She showed that positive outcomes of a skill-based training program to enhance mothers' sensitive responsiveness to irritable infants were still evident when the child was over three years old. Teerikangas, Aronen, Martin and Huttunen (1998) also demonstrated longitudinal effects of interventions: home-based family counseling during the first five years of a child's life was shown to protect children at temperamental risk of developing psychiatric symptoms in adolescence. Positive changes in parenting may set the stage for positive changes in the child's temperamental manifestations (e.g., van den Boom, 1994, 1995). In the current study, positive changes in temperament, in turn, were shown to be related to changes in self-esteem. Such changes may also be hypothesized to prevent future confrontations in different social settings e.g., in adolescence among peers.

There are certainly many other factors in addition to temperament and those originating from it, that play a role in the development of optimism and pessimism. For example, we are currently conducting analyses using the Cardiovascular Risk in Young Finns data set regarding socioeconomic circumstances and dispositional optimism and pessimism. Worse socioeconomic circumstances in childhood seem to be related to a pessimistic orientation in adulthood, even after controlling for the person's current circumstances, thus indicating the importance of more distal environmental factors. Moreover, regardless of any intervention and prevention methods, there will always be individual variations in dispositional optimism and pessimism: some people will have positive generalized outcome expectancies, and others more negative expectations arising from genetic variance or life events, for example. Thus, instruments that intervene directly in terms of levels of the disposition are also needed, although there is certain

skepticism in the air about the real possibilities to change a stable disposition (Norem & Chang, 2001). Moreover, some studies suggest that changing only dispositional optimism and pessimism without taking into account other personality factors might be misleading (Davidson & Prkachin, 1997). It should also be kept in mind that the importance of dispositional optimism and pessimism might vary dramatically as a function of where the person is in the life course. For example, it has been documented (Schulz et al., 1996), that mortality after cancer diagnosis varies according to the level of pessimism among patients aged 30 to 59, whereas pessimism does not function as a risk factor among older patients (see Schultz et al., 1996 for discussion on the potential explanations for these results). In addition, in some situations, e.g., when a lot of bad things happen (Tennen & Affleck, 1987), in gambling (Gibson & Sanbonmatsu, 2004) or among samples prone to risk-taking health behaviors (Taylor et al., 1992), optimists may do worse than pessimists. In summary, in the light of the existing literature, intervention methods are needed that focus on early periods of life and take into account the developmental context. Such interventions could be assumed to be beneficial and benign, because they focus on periods when dispositional optimism and pessimism has not fully developed, and because their effects are assumed to be reflected in a wide area of childhood outcomes including those that promote and develop in parallel with it. Interventions that focus directly on increasing levels of dispositional optimism should still be practiced with care.

It is to be hoped that future findings will further increase our knowledge of the aspects of the disposition that have been shown to have such a great impact on our everyday lives, as well as on our ability to go through difficult periods in life.

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